



ZAMBIA ASSOCIATION FOR PROSTHETICS AND ORTHOTICS

PROSTHETICS AND ORTHOTICS SERVICES

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1.0 INTRODUCTION

Prosthetics and Orthotics (P&O) is a health care profession, which combines a unique blend of clinical and technical skills to care for patients who have neuromuscular and musculoskeletal disorders and/or patients who have a partial or total absence of a limb. These rehabilitation services are available locally at tertiary health institutions and at some faith based institutions. Prosthetics and Orthotics services are offered at University Teaching Hospital (Adult), Arthur Davison Children Hospital, Kitwe Teaching and Livingstone Central Hospitals.

Mobility is the first step to access basic rights including access to food, shelter, education, job/income and equal opportunities. The most important components in restoration of mobility are assistive devices such as prostheses and orthoses. Prosthetics and Orthotics services play a major role in enabling persons with physical impairment and functional limitations to live a healthy, productive, independent and dignified lives. The use of prostheses and orthoses can reduce the need for formal health care, support services, long term care and caregivers.

The Convention on Rights of Persons with Disabilities (CRPD) states that Member States are responsible for taking measures to ensure personal mobility for the greatest possible independence for people with disabilities.

WHO estimates that, today, only 1 in 10 people in need has access to assistive products including prostheses and orthoses because of their high cost and because lack of awareness, availability, trained personnel, policy and financing. Hence WHO and the International Society for Prosthetics and Orthotics (ISPO) are coordinating a global initiative, Global cooperation on assistive technology (GATE), to improve access to high quality affordable assistive products.

Rehabilitation services are an essential part of health care and integral to achieving Universal Health Coverage. Rehabilitation needs are growing globally, along with rising prevalence of non-communicable diseases and aging populations. National efforts must strengthen the health systems to provide rehabilitation services so that they are available at all levels of health care. Prosthetics and Orthotics service are well integrated in the Health System in Zambia. The Ministry of Health has ensured support to provision of infrastructure, training of human resource, procurement of equipment and consumables/materials for service delivery.

1.1 Challenges

The prosthetics & orthotics profession is currently experiencing deficits in trained human resource in all categories due mainly to lack of in-country training at both BSc and Diploma levels. This has affected the coverage of prosthetics and orthotics service across the country. The number of practitioners in the country currently stands at 16 only with various qualifications.

1.2 Way Forward

Plans are underway in the Ministry of Health to introduce a Prosthetics & Orthotics training programme at diploma level next year to mitigate the shortage of trained human resource and reduce on the cost of training abroad.

2.0 DEFINITIONS

2.1 Prosthetics

Science and art of treating people by the use of prostheses

2.2 Prosthesis, Prosthetic device, Product (Artificial legs and Hands)

Externally applied device used to replace wholly or partly an absent or deficient limb segment

2.3 Orthotics

A science and art of treating people by the use of orthoses

2.4 Orthosis, Orthotic device, Product (Braces and Splints)

An externally applied device used to modify the structural and functional characteristics of a neuromuscular and skeletal systems

2.5 Prosthetist/Orthotist

A health care professional who uses evidence based practice to provide clinical assessment, prescription, technical design, and fabrication of prosthetic and/or orthotic devices. Prosthetists/Orthotists work independently or as part of the health professional team. They set goals and establish rehabilitation plans that include prosthetic/orthotic services and clinical outcome measures. The profession aims to enable service recipients so they have equal opportunities to participate in society.

2.6 Associate Prosthetist/Orthotist (Prosthetic/Orthotic Technologist, Orthopaedic Technologist)

A health care professional who uses evidence based practice to provide clinical assessment, prescription, technical design, and fabrication of prosthetic and/or orthotic devices and implements the treatment plans. Associate Prosthetists/Orthotists work as part of the health care team under the supervision of the Prosthetist/Orthotist. They set goals for the use of prosthetic/orthotic devices and deliver services to achieve desired outcomes.

2.7 Prosthetic/Orthotic Technician (Orthopaedic Technician)

Non clinical service providers that support technical design of prosthetic/orthotic devices. They also work as part of the health care team.

3.0 PROFESSIONAL PROFILE FOR CATEGORY I (PROSTHETIST/ORTHOTIST)

3.1 Formulation of treatment

- Participates as full member of the clinic team; takes part in the examination and prescription; and advises on the design of the prosthetic/orthotic device, including the socket or body/device and interface, suspension and selection of proper components.
- Assists and advises on relevant aspects of pre-surgical, post-surgical, medical and therapeutic management of individuals requiring prosthetic/orthotic devices.

- Records and reports any pertinent information regarding users and users' families, including a determination of expectations and needs.
- Communicates appropriate information to the users and their families.

3.2 Fitting, fabrication and treatment

- Supervises and directs the activities of individuals in Category II (orthopaedic technologists) and Category III (bench technicians) in fitting and fabrication
- Identifies physical and other relevant characteristics of the user.
- Formulates prosthetics or orthotics designs, including selection of materials, components and additional aids.
- Takes all casts and measurements required for proper fabrication and fitting.
- Modifies positive and/or negative models and/or layout of design to obtain optimal fit and alignment.
- Carries out fitting, static and dynamic alignment and, where appropriate, preliminary training and initial check-out.
- Performs and/or supervises fabrication of the prosthesis or orthosis.

3.3 Evaluation and follow-up

- Advises the team and participates directly in final check out and evaluation of fit, function and cosmesis
- Instructs the user or family in the use and care of the device.
- Takes part in follow-up procedures as well as maintenance, repairs and replacement of the appliance.
- Recognises the need to repeat any of the identified steps in order to optimise fit and function.
- Collaborates and consults with others engaged in the management of the person requiring prosthetics/orthotics service.

3.4 Management and supervision

- Supervises the activity of supporting staff as appropriate.
- Manages clinical and laboratory/workshop activities assigned to him/her
- Devises improved job methods for increasing efficiency.
- Interacts with professional groups and, where appropriate, governmental and non-governmental agencies.
- Takes part in planning and implementation of prosthetic and orthotic care systems.

3.5 Training and education

- Supervises and conducts the education and training of individuals in Category I (prosthetists/orthotists), Category II (Associate P&O, prosthetic/orthotic technologists, orthopaedic technologists) and Category III (technicians/bench workers).
- Lectures and demonstrates to colleagues in his/her profession and other professionals concerned with prosthetics/orthotics and also to other interested groups.
- Is required to take part in and contribute to the process of continuing professional development.
- Keeps abreast of new developments concerning prosthetics/orthotics and teaching techniques.

3.6 Community services

- Makes a professional contribution to and takes part in community rehabilitation programmes.

3.7 Research and development

- Conducts continuing evaluation of his activities.

- Participates in formal evaluation and research programmes.
- Participates in scientific/professional meetings and contributes papers to scientific/professional journals.

3.8 Medical, legal and ethical requirements

- Provides service to the user within a recognised prosthetics/orthotics code of ethics.
- Provides service to the user, which complies with medical/legal requirements.

3.0 PROFESSIONAL PROFILE FOR CATEGORY II (ASSOCIATE PROSTHETIST/ORTHOTIST, PROSTHETIC/ORTHOTIC TECHNOLOGIST OR ORTHOPAEDIC TECHNOLOGIST)

4.1 Formulation of treatment

- In the absence of a Prosthetist/Orthotist participates as full member of the clinic team;takes part in the examination and prescription; and advises on the design of the prosthetic/orthotic device interface, suspension and selection of the proper components.
- Assists and advises on relevant aspects of pre-surgical, post-surgical, medical and therapeutic management of individuals requiring prosthetic/ orthotic devices.
- Records and reports any pertinent information regarding patients/users and their families, including a determination of expectations and needs.
- Communicates appropriate information to patients/users and their families.

4.2 Fitting, fabrication and treatment

- Identifies physical and other relevant characteristics of the patient/user.
- Formulates a range of prosthetic or orthotic designs including selection of materials, components and additional aids.
- Takes all casts and measurements required for proper fabrication and fitting.
- Modifies positive and/or negative models and/or layouts of design to obtain optimal fit and alignment.
- Carries out fitting, static and dynamic alignment and, where appropriate, preliminary training and initial check-out.
- Performs and/or supervises fabrication of the prosthesis or orthosis.

4.3 Evaluation and follow-up

- Advises the team and participates directly in final check-out and evaluation of fit, function and cosmesis.
- Instructs the patient/user or family in the use and care of the device.
- Takes part in follow-up procedures as well as maintenance, repair and replacement of the devices.
- Recognises the need to repeat any of the identified steps in order to optimise fit and function.
- Collaborates and consults with others engaged in the management of the patient/user.

4.4 Management and supervision

- Supervises the activity of supporting staff as appropriate.
- Manages clinical and laboratory/workshop activities assigned to him/her, including:
- Devises improved job methods for increasing efficiency.
- Interacts with professional groups (as well as) and, where appropriate, governmental and non-governmental agencies.
- Takes part in planning and implementation of technical orthopaedic care systems.

4.5 Training and education

- May supervise and take part in the training of individuals in Category II (orthopaedic technologists) and Category III (technicians/bench workers).
- May lecture and demonstrate to colleagues in his profession and other professionals concerned with prosthetics/orthotics and also to community and other interested groups.
- Is required to take part in and contribute to the process of continuing professional development.
- Keeps abreast of new developments concerning prosthetics/orthotics and teaching techniques.

4.6 Community services

- Makes a professional contribution to and takes part in community rehabilitation programmes.

4.7 Medical, legal and ethical requirements

- Provides patient/user care within a recognised prosthetics/orthotics code of ethics.
- Provides patient/user care, which complies with medical/legal requirements.

5.0 CLINICAL STAFF AND QUALIFICATIONS

Category I	Prosthetist/orthotist (or equivalent term)	University entry level	4 years formal structured education leading to University degree
Category II	Associate Prosthetist/Orthotist, Prosthetic/Orthotic or Orthopaedic Technologist	Usual national requirement for paramedical education	3 years formal structured education leading to a diploma in prosthetics & orthotics
Category III (lower limb prosthetics)	Lower limb prosthetics technician	Usual national requirement for paramedical education	1 year formal structured education plus clinical experience in only lower limb prosthetics to Category III level
Category III (lower limb orthotics)	Lower limb orthotics Technician	Usual national requirement for paramedical education	1 year formal structured education plus clinical experience in only lower limb orthotics to Category III level

6.0 INFRASTRUCTURE FOR PROSTHETICS AND ORTHOTICS

The ideal infrastructure for a Prosthetics & Orthotics Lab/Workshop should comprise;

1. A reception
2. Examination room
3. Measurement/Casting room
4. Cast Rectification/Modification room
5. Lamination room
6. Machine room
7. Staff work station
8. Gait training and Analysis room
9. Staff room
10. Store room
11. An office

6.1 EQUIPMENT FOR PROSTHETICS & ORTHOTICS UNITS

STANDARD PROSTHETICS AND ORTHOTICS EQUIPMENT FOR THIRD AND SECOND LEVEL HOSPITALS

1. Router Machine
2. Combined Face/ Belt Grinding Machine
3. Wide Belt Sanding Machine
4. Suction Equipment
5. Air Compressor Unit
6. Infrared Heating Cabinet /Oven
7. Alignment Jig
8. Vacuum Pump
9. High Speed Orthopaedic Press
10. Column Drilling Machine
11. Bench Drilling Machine
12. Electric Zigzag Sewing Machine
13. Shoe Patching Machine
14. Double Grinding Machine
15. Bench Grinder
16. Universal Band Saw Machine with Accessories
17. Finishing and Trimming Machine
18. Mobile Dust Aspirator
19. Work benches and Accessories
20. Welding m/c

APPLIANCES/SPECIAL DEVICES AND HANDMACHINE TOOLS

1. Spinal casting aid
2. Plaster devices/ casting frame with accessories
3. Examination table
4. Parallel Bars
5. Test Platform with inclined surface and steps
6. Vacuum Forming workstation
7. Lamination workstation
8. Suction Pipes
9. Prosthetic Fitting Stand
10. Electric cast cutter
11. Staple gun
12. Machine Vice
13. Electric hand Drilling Machine
14. Electric Jig Saw
15. Bench Vices
16. Film Demonstration Screen
17. Hand Sealing Iron
18. Screw Press
19. Riveting Bar
20. Lead Block
21. Mirror Welder
22. Anvils
23. Enveloping Suction Tube
24. Hot Air Gun

PROSTHETICS AND ORTHOTICS TRAINING SCHOOL

Infrastructure

- Three Prosthetics and Orthotics laboratories
- Two Machine rooms
- Two examination room
- One modification room
- One Lamination room
- Two cast rooms
- One gait laboratory
- Upholstery room
- Storeroom
- ICT/Library
- Offices
- Staffroom

Equipment

- Six Router m/c
- Two vertical sanding m/c
- Two lamination stations
- Three column drilling m/c
- Two vacuum pumps
- Two ovens
- Five Sewing m/c
- Two compressors
- 48 workbenches

George Sampa

Certified Prosthetist/Orthotist

National Coordinator Prosthetics and Orthotics

Ministry of Health