Prosthetics Outreach Foundation

Prosthetics Outreach Foundation (POF) is a nonprofit medical service organization that provides urgently needed high-quality prostheses (artificial limbs) to amputees in developing countries and in the United States. Since 1988, the staff and volunteers have fitted over 10,000 children and adults with new prostheses, enabling each amputee to walk again with dignity. POF helps communities to meet the needs of their own amputees by establishing clinics to create and fit artificial limbs and workshops to manufacture prosthetic components with local materials.

The Ongoing Mission of POF

- POF provides humanitarian relief and modern prosthetic care to amputees in developing countries.
- POF employs the use of computer-aided design and manufacturing technology for high quality automated prosthetic treatment.
- POF provides regular clinical outreach services to amputees living in remote regions.
- POF conducts ongoing research into prosthetic components which are durable enough to withstand the harsh physical and climatic conditions typical to tropical regions.
- POF assists communities in becoming self-reliant by establishing clinics and workshops to manufacture prosthetic components with local materials.
- POF serves as a clinical and technical resource for amputees, government institutions and humanitarian organizations.

Dr. Ernest Burgess

Burgess pioneered hip replacement surgery, new techniques in amputation surgery and became the mentor to generations of orthopedic surgery residents. He introduced the long posterior flap amputation technique to the United States following an academic exchange tour of Poland. This technique dramatically improved circulation in the residual limb and allowed many amputees to enjoy a more active lifestyle.

In 1964, the United States Veterans Administration asked Burgess to establish Prosthetics Research Study (PRS). PRS has become one of the leading centers in the world for developing postoperative care that directly improves the rehabilitation of the amputee.

Technology and Innovations Developed at PRS

- Immediate post-operative fitting (IPOP) of a prosthesis improved healing and rehabilitation time considerably.
- The Seattle Foot ®, which has an internal spring, opened the door for amputees seeking an active lifestyle. "Compliant feet" based on this model have also improved comfort for amputees of all ages.
- Always the visionary, Burgess foresaw the impact that the computer could have on the prosthetics profession. Seattle ShapeMaker ® software and the AFMA techniques have improved accuracy, efficiency, and consistency in the design and production of prostheses.
- In 1994, an Endowed Burgess Chair was established at the University of Washington Medical School to fund orthopedic research.

American veteran amputees who had returned to Vietnam and were aware of the horrible inadequacies of medical services and prosthetics there, asked Burgess to help the thousands of Vietnamese men, women and children in need of such care. In 1988, with the assistance of volunteers, POF began the planning for a demonstration clinic in Vietnam. The Prosthetics Outreach Center (POC) opened in 1991 to provide free limbs to amputees in desperate need of prosthetics. To date, thousands of amputees have received a new prosthesis free of charge.

International Outreach

The essence of POF service to amputees is providing mobile prosthetic treatment to rural areas where many of the amputees live. POF also provides clinical and technical consultation to international organizations and health ministries of developing countries who seek effective solutions to amputee treatment.

Vietnam

The Vietnamese team coordinates monthly visits to the rural provinces from the Chinese border to as far south as Da Nang. It requires two visits to each rural site to complete a prosthetic fitting. On the first visit, the medical staff evaluates, documents, and then takes a plaster bandage cast of the patient's residual limb. The team then returns to the Hanoi clinic and begins making the prosthesis using the AFMA system. Upon completion of the prosthesis the team returns to fit the limb to the patient. Any custom adjustments can be made on site using portable workshop tools transported by the team. POF has also begun to assist the small provincial workshops with training, tools and supplies so that they are able to maintain the prosthesis and ensure it continues to be functional for the amputee.

Philippines

The foundation has assisted Our Lady of Victory Training Center on Mindanao Island in the Philippines since 1997. Dr. Cecelia Wood has created a unique surgical and rehabilitation center to care for abandoned children in need of surgery and rehabilitation care. POF assisted with the design of their new prosthetics clinic and has supplied equipment and prosthetics supplies. David Mathews, from our foundation, has also conducted AFMA training for the staff. This new center will act as a catalyst for improved prosthetic care for all of the Philippines.

PROFILES

Nicaragua

POF assisted the Mercy Ships organization with the creation of their mobile prosthetics workshop, including design, installation and staff training. This unique self-contained workshop is housed in a 20-foot long standard shipping container. The workshop was transported to Leon, Nicaragua, where it provided prosthetic services for the surrounding region. Mathews provided the Mercy Ships' staff with training in AFMA techniques and in the fabrication of the Monolimb. Only two staff members were needed to complete more than 200 limbs in this very efficient facility. Following the Hurricane Mitch disaster, POF donated a shipment of prosthetic feet to the National Rehabilitation Center in Managua. Nicaragua continues to need outreach services to the many remote communities where amputee services are unavailable. Your donation can help POF to fund a prosthetic outreach clinic in Central America.

1999 Milestones

POF Sends Hope to Kosovo Amputees

POF announced plans in June 1999 to send 250 prosthetic feet to landmine victims in Albania and Kosovo. Two hundred adult and 50 child-sized artificial limbs will be distributed in 1999 to help sustain survivors in this war torn region during the transition to peace.

Little Footprints

POF announced in July 1999 a goal to provide artificial limbs to 500 Vietnamese woman and children in need during the year 2000. The estimated cost to complete this project is $100,000. Beginning in 1996, Prosthetics Outreach Foundation began a series of development projects with the goal of improving the quality of the prosthetic service in Vietnam and enabling the Vietnamese people to become self-sufficient in prosthetic technology and clinical services. The staff at POF welcomes the opportunity to share this clinical technology and we look forward to a dialogue with colleagues who have suggestions for improvement

Ba Vi Orthopedic Technology Center

This center, located 50 kilometers west of Hanoi, is the national manufacturing center for rehabilitation products in Vietnam. The buildings and machines are old, but the staff has the energy and enthusiasm to design and manufacture new products of improved quality and function. This collaborative project could serve as a model of self-reliance for other countries.

Technological Updates

- **EB1 Foot**: The foot component of prosthesis historically has been a design challenge in regard to the durability of the prosthesis. A team of engineers and prosthetists both in Hanoi and Seattle set about to design, test and manufacture a durable, locally manufactured foot named the EB1.
- **Modular Components**: In addition to the foot manufacture, a system of modular above-knee and below-knee components has also been manufactured. These include a knee joint, 30mm pylon, and alignment adapter with mounting plate, Monolimb bushing and suspension studs. Local suppliers have also been located for 6mm, 8mm and 10mm bolts, cotton stump socks, leather suspension belts, pelite and copolymer plastic materials.

Prosthetics Outreach Clinic (POC)

POC is both a central fabrication workshop for the monthly prosthetic outreach service and a research facility to improve the quality of the prosthesis. All prototype component designs are tested on a small group of patients affiliated with the clinic.

- **POF Monolimb**: Many amputees in Vietnam have long residual limbs, which are typical of landmine injuries. As a practical prosthetic solution, the Monolimb (or extended below knee socket) was fabricated. POF refined the components and fabrication techniques to make the monolimb a very affordable, durable, and high-quality prosthesis.
- **ShapeMaker Alignment**: Although a Monolimb can be fabricated using manual methods, POF is dedicated to designing the Monolimb using the AFMA techniques. The new alignment screen now featured in version 4.3 of Seattle Shapemaker allows a complete prosthesis to be designed and fabricated.
- **Quality Assurance**: The process of quality improvement and quality control in manufacturing has required the training and monitoring of specialized staff. POF began the component development projects by first establishing a basic laboratory to test prototype designs. The static and cyclic testing machines were manufactured at Ba Vi.

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