Final Version

Report

ISPO/LWVF Evaluation Team

VIETCOT Graduates

24 October – 4 November, 2010

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Executive Summary

An evaluation team representing the International Society for Prosthetics and Orthotics (ISPO) consisting of one orthopaedic surgeon and four prosthetic/orthotic educators conducted a field visit to Vietnam in late October and early November, 2010 as part of the USAID/ISPO grant having three purposes; to evaluate the effectiveness of the education of the Vietnamese Center for Orthopaedic Technology (VIETCOT) graduates, to look at end user services in Vietnam and to develop an efficient evaluation process for future such missions in other countries. Seven centers were visited. Thirty-two graduates and their work with 39 clients were evaluated.

The evaluation team concluded that the graduates were almost universally well trained, provided safe and effective care and sound prosthetic and orthotic services in their communities. Their services were limited primarily by available materials and components. There are a number of areas, largely having to do with practice management and record keeping, which need to be improved and might be addressed by specific educational programs at VIETCOT.

VIETCOT is recognized throughout Vietnam for its expertise in training P&O service providers. It sets the standard in Vietnam and is a resource through its relationship with ISPO for continuing education. It suffers from limited funding resources and is unable to meet the current demands for clinicians.

VIETCOT has benefited from USAID/ISPO support to date and it is the conclusion of this field visit that the support should continue or expanded. A number of specific recommendations for the future are included in this report.

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N.B. This report reflects input and contributions from all of the members of the team and has been reviewed by each of them.

Purpose

In accordance with the Cooperative Agreement No.DFD-0-00-08-00309-00 between United States Agency for International Development (USAID) and the International Society for Prosthetics and Orthotics (ISPO) for the funding of a program entitled *"Rehabilitation of Physically Disabled People in Developing Countries",* September 30, 2008, (Grant) and in compliance with proposed evaluations enumerated in that Grant an ISPO team of evaluators traveled to Vietnam and conducted an evaluation in late October and early November, 2010.

Objectives (As stated in the Grant)

1. "Evaluate the impact on its society of the P&O education program in the country visited."
2. "Conduct a graduate feed-back questionnaire."
3. "Assess the impact on the end-user in the country evaluated."
4. "Conduct a field follow-up by community rehabilitation workers (CBR)."

Specifically the Grant suggested comparing work performed by Cat I and Cat II graduates, assess the impact of the P&O educational curriculum on the needs of the disabled in Vietnam as a whole, collect feedback from Disabled Peoples Organizations (DPO), and provide feedback for VIETCOT in order to facilitate improvement in their educational programs.

Lastly the evaluation team was to give a critical assessment of the evaluation process and data gathering forms and to provide suggestions for future such ventures.

Previous Activities

Graduate evaluations have been conducted for ISPO-accredited Prosthetic/Orthotic Training Schools in Tanzania, Cambodia, El Salvador, Pakistan, India, Laos and Vietnam. These past assessments primarily focused on the prosthetic and orthotic devices, specifically those for the lower limb, as to their fit, function and construction. ISPO leadership has recognized that the assessment of a device is one indicator of training but that there are other factors that also must be considered when evaluating the effectiveness of training programs on prosthetic-orthotic service delivery in any country. More focus was placed during this field visit on graduate interviews and client case presentations by graduates of the VIETCOT program. This graduate assessment is not a scientific study with measurable results but is a subjective assessment of

service provided and is based on observations done by medical and P&O professionals well-experienced in the prescription and delivery of P&O services.

A graduate questionnaire process has previously been conducted for school graduates and was not a part of this field visit.

Country Considerations - Vietnam

Prosthetic/Orthotic Services in Vietnam, a Historical Perspective

Vietnam has had nearly a five-decade history of conflict within its borders. War injuries, accidental detonations of old war munitions, disruptions in the development of medical/surgical/immunization services and road and industrial accidents have all contributed heavily to the national need for rehabilitation services. Polio spread through the country because of disrupted immunization programs, children with clubfeet were untreated, the lack of pre- and post-natal care resulted in increased numbers of children

with cerebral palsy, disease and trauma all resulted in thousands of Vietnamese requiring rehabilitation services, some for decades.

The United States Agency for International Development (USAID) funded a project managed by the World Rehabilitation Fund in 1965 to develop medical rehabilitation, vocational training and prosthetic/orthotic services, first in Saigon and later in DaNang, Qui Nhon, Can Tho, and Thu Doc. The last center was built with funding from New Zealand. These centers were active until 1994, but the warring activities between 1965 and 1994 severely limited their ability to develop services.

The US Government again began to address the issues of disabilities in Vietnam following a fact-finding mission to Vietnam by a team of experts lead by General John W. Vessey. That 1987 report indicated that there were an estimated 300,000 persons with disabilities who were unable to work. There had been no national census, much of the country was not easily accessible, and the estimates were only of those with a very visible disability, with amputation being the most obvious. Amputee numbers were first set at 60,000 but were later established at closer to 100,000.

Organized prosthetic services began to arrive in Vietnam starting with the International Committee of the Red Cross (ICRC) in 1988. The Prosthetic Research Foundation (PRF) made initial contact with the Vietnam Ministry of Labor, Invalids and Social Affairs (MOLISA) in 1989 which led to the opening of a clinic in Hanoi in 1991. Other organizations, American Friends Service Committee, World Vision, and Vietnam Assistance to the Handicapped (VANH) all began prosthetic services at about this same time frame in cities primarily in the south of the country.

The majority of existing prosthetic services in Vietnam were found to operate based on a market economy, fee for service. Services were primarily available to those with government sponsorship. Veterans of the South Vietnamese military were not eligible for government sponsorship. The primary focus of USAID support was the establishment of services for those individuals who did not have sponsorship.

Those workshops that were first established were confronted with thousands waiting for service. Patients with post-polio paralysis had gone without orthotic service, and some amputees had never had a limb provided. Amputees made their own limbs by using whatever materials they could adapt, such as metal tubes, bamboo, sticks, pegs and rags for padding. Prosthetic/orthotic services were an extreme challenge, having limited technical and material support.

As prosthetic services were being developed, waiting lists were reduced and more attention was given to addressing the quality of services provided. Some of the non-governmental organizations (NGOs) believed in the use of local technologies and material resulting in what was described as primitive technologies. Others used

primarily imported components and even sophisticated computer technologies. These approaches eventually proved unsuitable. Training varied from classroom to “on the job” experiences, but there wasn’t a consistency in trainers or their qualifications. ISPO approached USAID/LWVF in 1994 for grant support to establish internationally accepted standards and guidelines for prosthetic provision. They sponsored the ISPO Consensus Conference on Appropriate Prosthetic Technology for Developing Countries in June of 1995 and it was held in Phnom Penh, Cambodia. Later consensus conferences have addressed orthotic services and wheelchair provision. Those standards are now followed today by NGOs, national governments and the World Health Organization (WHO).

Current P&O Situation in Vietnam

There are currently approximately 31 government prosthetic/orthotic service centers in Vietnam. There are also a number of private workshops and individual private initiatives.

Through grants and cooperative agreements, USAID/LWVF has aided in the establishment of prosthetic/orthotic services in:

- Bach Mai- Hanoi
- National Institute of Pediatrics-Hanoi
- Ba Vi
- Hoa Binh
- Nam Dinh
- Thai Binh
- Ha Nam
- Thanh Hoa
- Vinh
- DaNang
- Quang Ngai
- QuiNhon
- CanTho
- Ho Chi Minh Rehabilitation Center-HCMC

Prosthetic/Orthotic services are administrated under The Ministry of Health (MOH) for young people and The Ministry of Labour and Social Welfare (MOLISA) for adults. Children have free health care including prosthetic/orthotic services up to age six years of age, but not beyond.

The war veterans in the south don’t receive any support except from the International Committee of the Red Cross (ICRC). Veterans from the north receive support from the

government. Funds from the MOH are given directly to the persons with disabilities once every three years for health needs. These funds are spent at the discretion of the individual and may or may not be spent on needed prosthetic/orthotic services. Each center determines their prices. Average costs for devices range from $75-175 US for KAFOs, $60 US for AFOs, $200 US for trans-femoral prostheses, and $175 US for trans-tibial prostheses.

In most centers Prosthetist/Orthotists receive a basic salary plus incentive payments of $10-15 US for every prostheses produced. In some centres salary is completely dependent on productivity.

Vietnam, with a population of 88 million people, has a high number of amputations caused by trauma (more than 50%). By rough estimation they have around 60-70 amputations per 100,000 inhabitants and about 57,000 new amputees each year. It is estimated that there is a greater need for orthotic services; reportedly representing 60-70% of the volume of prosthetic/orthotic services, this resulting in a yearly need of an estimated 94,000 orthotic devices. The Rehabilitation Hospital in Ho Chi Minh City was the only facility reporting more prosthetic services than orthotic needs. This was considered to be due to their emphasis on former combatants from the south.

The number of prostheses and orthoses needed in Vietnam each year has been estimated to far exceed the number of existing prosthetic/orthotic service providers and the capacity of existing educational facilities to produce them. It has been estimated that Vietnam has a need for 3000 Prosthetist/Orthotists.

The School -VIETCOT

VIETCOT

The former German Democratic Republic (GDR) developed a project in orthopaedic technology for Vietnam between 1977 and 1978. It included the provision of machinery and material, with a training component for a site in Ba Vi. Supervision lasted until 1990. The Federal Republic of Germany agreed to continue the project. The German Agency for Technical Cooperation (GTZ) organized a school in 1995 and handed it over to the Ministry of Health in 2005. It graduated its first students to complete a three program in 1997 and to date has turned out 135 graduates. (78 Cat II - 25 USAID scholarships,14 Modular, 43 Single discipline - 30 USAID scholarships).

USAID has given a number of scholarships to non nationals and recently to two Vietnamese students. In 2008 the school began instruction in English for foreign students. The current cost per student is $4500 US/year with a maximum of 15 students each year. Average class size is, however, 10 students due to lack of funding. Vietnamese nationals receive only $400 US each year from the Vietnamese Government for educational support. As a result many potential students cannot afford the school fees and those who can are likely to seek education outside of the country. Consequently the future financial stability of VIETCOT is very uncertain.

Graduate Assessment Process

The Team

- Dr. John Fisk-Orthopaedic Surgeon-United States
- Bengt Soderberg CPO-Prosthetist/Orthotist General Practice-ISPO President Elect-Sweden
- Heinz Trebbin CPO-Prosthetist/Orthotist General Practice-Education-Germany
- Helen Cochrane CPO-Prosthetist/Orthotist General Practice-Education-Canada
- Nguyen Hai Thanh CPO-VIETCOT Director-Vietnam
- Mel Stills CO-LWVF/USAID Representative to the ISPO Team- United States

This team functioned extremely well together. Mel Stills, representing USAID contributed a greatly appreciated historical perspective of the environment in which the evaluation was to occur. John Fisk contributed a clinical and an educator perspective and helped the team modify its evaluation process as the work progressed. The three Prosthetist/Orthotist educators interjected experience and training. In addition their prosthetic/orthotic educator skills from widely diverse geographical backgrounds, they aided in critical graduate evaluations. They could bring an awareness of how things are done in other parts of the world. The total number of evaluators was perhaps more than would be required for a routine evaluation once the process is refined, but for this

occasion that number served well to evaluate and modify what was happening on a daily basis.

Methods

Prior to conducting the mission previous evaluation instruments were reviewed for their relevancy and effectiveness. A new data sheet was developed by a group having experience with evaluations in the field. Goals and practices for the team were discussed in advance and modified as necessary throughout the two week project. At the end of each day there was a debriefing including experiences the team encountered and discussions of the lessons learned. Suggestions were solicited and shared for modifying procedures for the next day. At the conclusion of the mission the team worked together to arrive at a consensus of what had been learned and what should be suggested for the future.

Outcomes

Data collection instruments were suggested in the grant but were considered to be ineffective in extrapolating the information of interest and therefore were not used. The SF-36 and the World Health Organization quality of life instruments have not been translated into Vietnamese and enquired about social and occupational activities not appropriate for Vietnam. Before such instruments can be used in developing countries they must be not only translated but also validated for the social setting in which they will be employed. The Q-o-L outcomes instrument from WHO in particular appears to be more emotionally/psychology based and was felt not to be applicable for the persons with disabilities concerned more with functional outcomes. The SF-36 is more appropriate but has not been validated for Vietnam.

The earlier ISPO device evaluation instruments were felt not to be suitable because they looked at only one outcome of the practioners activities, i.e., the device. Our team sought to evaluate the behaviors of the graduates in a more global sense. We sought to develop and evaluate an entirely new data sheet and methodology.

The graduate is asked to assess the patient/client/beneficiary and report findings, clarify needs, and make recommendations while describing the services that they have provided. The ISPO team observed this process, verified findings, listened to discussions and made a determination of the graduate's technical and professional abilities. Has the graduate acquired the necessary knowledge and skills in order to deliver the best lower limb orthotics and/or lower limb prosthetics? If deficiencies were identified, are they related to teaching methodologies, available material, or were they beyond what is expected of a Category II training program? More than a graduate survey, this process has the potential to be developed into an assessment of prosthetic/orthotic service provision in a country and its influences on service delivery.

This can become a more valuable tool for the development of a profession and addresses sustainability issues for prosthetic/orthotic service delivery in general.

These evolving procedures and methods were put into practice during the assessment of multiple sites in Vietnam representing facilities managed by the Ministry of Health (MOH) and the Ministry of Labor, Invalids and Social Affairs (MOLISA). The sites were also selected based on geographic spread representing the North, Central and South of Vietnam.

Evaluation Forms

The evaluation forms were modified with a number of thoughts in mind. (See appendices)

1. Written guidelines were provided to the team ahead of time and the evaluation process was discussed to insure uniformity.
2. The evaluation emphasized the graduate rather than the device.
3. Basic information about the device was collected for statistical reasons to see which types of devices were being produced but not for a critical evaluation of these devices.
4. Ample space was allowed for narrative as rarely was it found that data could be fit into boxes.
5. Sections were divided by bold lines with numbered section indicators to assist the scribe and to focus the thinking of the evaluators.

6. Most of the responses were to be gleaned directly from the graduate and not from the evaluator viewing the device.
7. Final conclusions are to be completed at the time of evaluation by consultation with both the evaluator and the scribe.
8. Forms should be signed by the evaluator in to ensure all relevant findings have been recorded and/or in case questions arise about specific findings.

Evaluation Process

The evaluation team visited seven prothetic/orthotic service centers having clinical workshops. Each visit began with meeting administrators and learning about the region, the populations served, the methods for service delivery and funding resources. The workshops were then inspected. Following this each graduate evaluated was asked to present a client for whom they had fabricated a device. At the beginning of each session it was made clear that this was not to be an examination of the graduate but rather an evaluation of how well their education had served them since leaving VIETCOT. Thirty-two graduates and 39 clients were seen for assessment. Evaluation forms were completed on each client presentation.

Services in Vietnam:

There are two main service suppliers in Vietnam

1. Ministry of Health (MOH), which is building 32 new rehab hospitals. The intention is to have prosthetic/orthotic services in each of them, but they are unable to get sufficient staff or provide adequate equipment for them. Today only four have prosthetic/orthotic services.

2. Ministry of Labor Invalids and Social Affairs (MOLISA) runs 23 centres, with traditional prosthetic/orthotic workshops.

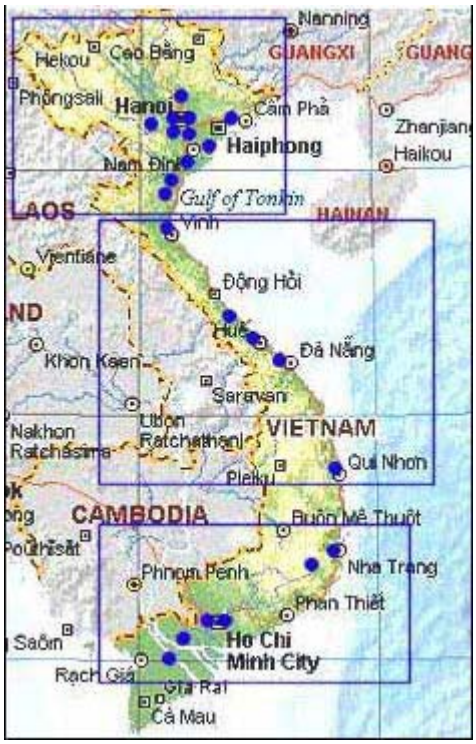
Private workshops are few and don't produce large quantities of prosthetics or orthotics currently. Private services are often performed outside working hours by practitioners working in other facilities during the day.

Currently there are no CBR programs reported to be working with P&O services. Earlier CBR programs that worked with prosthetic/orthotic services were discontinued when United Nations funding was withdrawn.

Sites Visited:

1. VIETCOT-Hanoi Monday October 25
2. Bach Mai Hospital-Hanoi Tuesday October 26
3. National Institute of Pediatrics -Hanoi Tuesday October 26

4. Thai Binh Rehabilitation Hospital Wednesday October 27
5. DaNang Rehabilitation Hospital Friday October 29
6. Ho Chi Minh Rehabilitation Center Monday November 1
7. CanTho Rehabilitation Center Wednesday November 3



VIETCOT-Hanoi Clinical Facilities

The VIETCOT clinical services are located on the ground floor of the same building housing the VIETCOT Prosthetic/Orthotic School. Clients waiting, casting, fitting and production areas are all separated from the school but staffed with prosthetists/orthotists that also have academic responsibilities in the school. The area appears appropriate as to size, layout and equipment. All patients are seen by Dr. Tran Danh Huynh at the Bach Mai Hospital for prescription, and after fitting to assess the devices and client function. There are 14 prosthetic/orthotic staff. Six are Cat I and eight are Cat II. They have had a computerized client registration system since 1997 with 1557 registered patients at present. Clients with lower limb orthotic needs comprise 63% compared to 23% with lower limb prosthetic needs. The remaining clients receive upper extremity, spinal or foot wear services. The single most common pathology seen was post-polio paralysis.

This was the first centre visited by the ISPO team. The team split into two groups, seeing both prosthetic and orthotic clients along with the Prosthetist/Orthotist responsible for their device. This activity was the first attempt to use the evaluation form developed prior to arriving in Vietnam. It was evident from these evaluations that this form was inappropriate /insufficient to gather the data of interest, focusing more individual client data rather than assessing the clinical competence of the graduate. .

The graduates performed well in their client assessments and with the recommendations they made. The individual devices assessed were appropriate to meet the physical needs of their clients. The devices were of good quality with respect to fit and function demonstrating good craftsmanship.

Few deficiencies in technical knowledge of delivery of lower limb orthotics or prosthetics were identified. Graduates and faculty indicated they desired more information and knowledge in the orthotic management of cerebral palsy, stroke and polio.

Bach Mai Hospital-Hanoi-Ministry of Health

Bach Mai is the largest hospital in Hanoi. It has a well equipped physical therapy department. It had the feel of a large urban hospital. The prosthetic/orthotic workshop is located within the hospital. The workshop is now staffed by four individuals; three Cat II graduates from VIETCOT and a bench technician. One of the Cat II graduates is away attending a Cat I prosthetic/orthotic program in Thailand. The workshop is in disarray, cluttered, unkempt, with poorly utilized or non-functional machinery. Twenty to twenty-five orthoses are provided per month. Clients pay a fee for service. No records are maintained in the department or were available during this visit.

VVAF provided long term support and funded many aspects of building, training and equipment. Now that funding has ceased the investment does not appear to be maintained. The prosthetic/orthotic department appears to have poor leadership; the client care areas are disorganized and unkempt. The working area is unclean, disorganized and unsafe. Much of the equipment was malfunctioning, tools were worn and consumables were limited. There was no provision for clinical follow-up.

We saw two patients. The first was an individual with hemiplegia secondary to stroke. He had an AFO and a WHO. Both fit well and functioned appropriately. The other client observed had sustained a traumatic brain injury (TBI) and was also wearing an AFO and WHO. Fit about the ankle and foot could be improved but overall function appeared to be adequate.

The Cat II graduate currently away for Cat I training in Thailand will return, but there is no indication that he will have an opportunity to practice his new skills. He would benefit

from experience in workshop management/assurance, marketing, or business management.

There is little indication that this center is using the operational models provided by VVAF or that the mentors have had any long-term positive impact. The current workshop manager, a 2002 VIETCOT graduate, was the only technical person interviewed, and he does appear to have a good grasp of orthotic principles taught by VIETCOT. Another center visited indicated that they consulted Bach Mai when they had a difficult case. Bach Mai may be an important center to deserving of greater support as mentoring resource.

National Institute of Pediatrics (NIP), Hanoi Ministry of Health

Formerly called the Swedish Children's Hospital the National Institute of Pediatrics (NIP) was originally built during the war with Swedish funds. The orthotic workshop is located in the hospital within the rehabilitation department. It is staffed by five VIETCOT graduates, three Prosthetist/Orthotists and two single-discipline lower limb orthotics graduates. The workshop appears well-maintained and well-organized, and all equipment was operational. Dr. Dzung, Director of Rehabilitation, reports that 994 orthotic devices were provided to 489 patients in 2009. NIP has abandoned outreach activities due to lack of financial support. Services for children are free up to six years of age, but not beyond. Dr. Dzung reported that as a result of internet searching he recognizes that his orthotists are not as current as he would like. More training in cerebral palsy, scoliosis and hip dysplasia is desired. The workshop place was functional but equipment was aging and wearing out. There was little evidence of work space safety or personal protection equipment.

All of the patients the team saw were fit with thermoplastic AFOs for diagnoses ranging from cerebral palsy to clubfoot. All devices observed appeared to have adequate fit except for lack of true control about the hind foot and ankle. Graduates interviewed responded appropriately with adequate knowledge about lower limb orthotics. All devices manufactured are based on a prescription provided by a medical doctor. The indications for orthotic design were not always justified. All graduates interviewed appeared to have a good grasp of lower limb orthotics as taught by VIETCOT.

Thai Binh Rehabilitation Hospital, Thai Binh Ministry of Health

Thai Binh is located approximately 100 kilometers Southeast of Hanoi. Its catchment area serves 2 million people. This newly built hospital is intended to treat 17 different pathologies, with stroke and spinal cord injury to be admitted within two weeks after an incident. There were 100 rehabilitation inpatients in a five-story building that has no

operational elevators. The instillation of equipment is not yet complete in spite of it being opened to patients. All rooms have identical floor plans and were not designed to accommodate any particular activity or patient care needs. The hospital has 14 medical doctors and six physical therapists. In addition, all nurses have six months of rehabilitation training.

Thai Binh workshop was initially the location of one of the prosthetic/orthotic facilities established with support from VVAF and USAID/LWVF. The equipment from the old facility was moved into the new rehabilitation hospital in the city one month ago. It appeared as if it were set up only a few days earlier in preparation for our visit. The prosthetic/orthotic department is located near the front entrance of the hospital in three of these patient style rooms. The presence of the USAID logo on client assessment forms was the only indication of its previous support.

The prosthetic/orthotic department is staffed with two Cat II prosthetic/orthotic VIETCOT graduates, one Cat II single-discipline lower limb orthotics graduate and one failed Cat II student working as a bench technician.

The prosthetic/orthotic department is poorly laid out. A client casting area was set up in the machine room. The room set up as an evaluation space is very small with just enough room for an examining table but little room to get around the table to do an assessment. A client with very limited mobility would not be able to get on the table. Client assessments were performed in the hall due to lack of space.

All services with the exception of prosthetic/orthotic devices are free at the hospital. The workshop serves both children and adults. The ratio of orthoses to prostheses was 65% to 35% but we did not see any of the latter. Two graduates interviewed had a fair grasp of lower limb orthotic practice. All of the devices evaluated fit and functioned well.

DaNang Rehabilitation Center-DaNang-MOLISA

DaNang is located in central Vietnam about midway between Hanoi and HCMC. It serves a population catchment area of 10 million. The DaNang prosthetic/orthotic workshop was one of the original prosthetic/orthotic sites supported first through World Vision. The workshop is now supported for prosthetics through the Special Fund for the Disabled (SFD) International Committee of the Red Cross (ICRC). The hospital is currently twinned with the Seattle Children's Hospital and a symposium was underway during our visit on the topic of children's orthopaedic issues with approximately 100 Vietnamese medical professionals in attendance. It has also been the site for at least two Ponseti Club Foot training symposia sponsored by Australians.

The DaNang Rehabilitation Center has recently been relocated to a new five-story hospital located on the same compound as the original center. The hospital has 120 bed capacity and an additional 210 community bed capacity. A building for an additional 100 bed unit will be added next year. All prosthetic/orthotic activities of the old center were relocated into the new building, including component and foot production. Therapy services in the new hospital are very spacious and well equipped. The staff appears to be fully engaged.

The prosthetic/orthotic department is located on the second floor with functional elevator access to all floors of the hospital. The prosthetic/orthotic department is well laid out, adequately equipped, well-maintained and very functional. Approximately 1300 prosthetic/orthotic devices were delivered in 2009, 20% orthotic and 80% prosthetic. There is a fee for prosthetic/orthotic services, and the P&O staff is paid based on productivity. Quality is maintained with the workshop manager responsible to insure each device meets the needs of individual patients and is of good workmanship.

This workshop sees 3000 clients a year, 2000 having prosthetic needs and 1000 with orthotic needs. Funding for the former is supplied by the International Committee of the Red Cross/ Special Funds for the Disabled (ICRC/SFD) support for former militants from this area. There is no support for orthoses. Outreach events occur five to six times per year. Devices are measured or cast for during outreach, but delivery occurs on site, up to two months after the event. Approximately 50% of devices delivered are as a result of outreach activity.

There are six Prosthetist/Orthotists assigned to the workshop with one of those working at the Quang Ngai facility. Two of the DaNang Prosthetist/Orthotists graduated from a 1979 training program at the Ba Vi Center with, then, East German trainers. Each Prosthetist/Orthotist is paid based on productivity, $10 for a trans-tibial (TT) device and $15 for a trans-femoral (TF) device. It is unclear if orthotic remuneration is at the same level.

All of the prosthetist/orthotist graduates working at the DaNang Center were interviewed. Ankle foot orthoses, knee ankle foot orthoses, trans-tibial and trans-femoral devices were assessed. The team saw the following pathologies; post-polio paralysis, spinal cord injury, stroke, trauma and amputation. The graduates demonstrated strong patient assessment and presentation skills. All devices that were seen were well-made with appropriate attention to detail. A significant number of clients seen were spinal cord injury patients with little measurable muscle strength below the waist. The majority of the KAFOs fit well with knee joints properly aligned, excessive pressures were not noted, and the KAFOs followed the contours of the limbs. These orthoses were provided based on a prescription from a physician. Long-term community ambulation

was not a realistic expectation. A wheelchair would have been a more appropriate prescription.

The VIETCOT graduates interviewed at the DaNang Center all demonstrated a strong knowledge of prothetic/orthotic principles and a capacity to deliver complex prosthetic/orthotic systems. All of them reflected well on their VIETCOT educational experience.

Orthopaedic Rehabilitation Center of Ho Chi Minh City (MOLISA)

This center, located in Ho Chi Minh City, is at its original location with plans to relocate to a new hospital complex within the next two years. It serves a catchment area for a population of 16 million people from 12 provinces. The ICRC/SFD project is located on site and is staffed by Miguel Fernandez, Head of ICRC/SFD Regional Office, Asia. The center is located within a complex having a 100 bed hospital with limited surgical services. The workshop provides 20% orthotic and 80% prosthetic services with the later numbering approximately 1000 per year. All components are manufactured on-site.

There are seven-teen staff members at the workshop of which ten are technical staff. Five of these were trained at VIETCOT, and five received training in 1979 at the BaVi Center. ICRC/SFD only supports prosthetic services for former militants. Individuals not classified as war victims must pay for prosthetic service; $70 for a trans-tibial prosthesis and $100 for a trans-femoral prosthesis. Prosthetic systems are designed to last three years, but the current prosthetic foot is lasting two years. Private resources must be utilized to purchase orthotic services.

The VIETCOT graduates presented only prosthetic patients. Their physical assessment and presentation skills of patients were acceptable. There was no record keeping or evidence of assessment forms. Evaluations and prosthetic recommendations were made by one Cat II Senior Prosthetist and then fitting and fabrication was done by a different Cat II team member on the evaluator’s recommendations. All prosthetic devices exhibited adequate fit, alignment and craftsmanship. Prosthetic design for trans-tibial limbs was limited to only cuff suspension. Silesian belts were utilized to augment suspension for trans-femoral limbs. Graduates are functioning at an acceptable prosthetic level and reflect positively on the teachings of the VIETCOT School.

CanTho Orthopaedic and Rehabilitation Center (MOLISA)

The CanTho Center is located some 160 kilometers Southwest of Ho Chi Minh City in the Mekong Delta and was established in 1969. It has thirty in-patient beds, surgical services and full therapy services. The center has thirty-five staff positions overall. There are two surgeons and there are nine members of the prothetic/orthotic department. Four of the nine are VIETCOT trained, two having received the Cat II prosthetic/orthotic program and two the Cat II single-discipline program. Five Prosthetist/Orthotist staff received training in 1979 at the Ba Vi Center.

There is no organized referral system to the center. There is no current waiting list for prosthetic/orthotic patients. The center sees both adults and children with frequent diagnoses of cerebral palsy, polio, amputations, clubfoot and trauma. This center provides 50 devices per month. Technical staff salaries are based on productivity. ICRI/SFD supports the provision of prosthetic services, orthotic needs are funded only through private support.

The center was observed to be well-organized with adequate space allocation, equipment and personnel. It is well-maintained, and all equipment appears operational. The center is still prone to flooding, and all doorways are blocked with a one-foot high concrete barrier to keep water out. This makes access very difficult for any client with limited mobility or requiring a wheelchair.

The four VIETCOT graduates presented a variety of patients having a diverse range of disabilities. Their presentations reflected a clear understanding of their patient's functional needs.

Prosthetic design was limited to cuff suspension for all trans-tibial patients. Trans-femoral design did include suction but also still relies heavily on Silesian belts. All devices provided were based on a prescription provided by a physician but in counsel with the responsible clinician. The devices provided were complex in design, fit well, were of good craftsmanship and followed the prescription.

Some of the orthoses were not functionally aiding the individual; however, they were fabricated well and were made according to prescription. The deficiency lay with the prescriber. The orthotists demonstrated a fine technical capacity, but a true team effort might have resulted in a more functional design.

The VIETCOT graduates did demonstrate that their training had sufficiently prepared them to deliver prosthetic-orthotic services at an appropriate level.

Graduate Observation Data

Graduates Evaluated: Cat I 1
Cat II 25
Cat II Single discipline 3
Ba Vi 3

27 Male 5 Female

Clients evaluated and Evaluation Forms completed: 39

26 Male 15 Female

Age range: Children 8 Adults 31

Prostheses: TT 9 TF 10

Residual limb problems 3

Foot problems 2 mal-rotated

Orthotics: AFO 14 KAFO 14

Diagnoses: Post Polio 7 Neurological 11 Cerebral Palsy 5 Club foot 2

Materials used:

Polypropylene, components were ICRC and made in country.

Common Team Observations

Graduate work:

- Socket fit; virtually all were satisfactory but all trans-tibial sockets were open ended without contact.
- Foot position problems; rarely seen; only 2 were mal-rotated.
- The alignment of orthoses was generally satisfactory but graduates could not give biomechanical reasons for attaining proper alignment.
- The craftsmanship was generally quite good.
- Appropriate prescriptions: Orthotists made the devices they were requested to, but there was frequently an inappropriate prescription provided by the physicians, especially for cerebral palsy and club foot.
- Components; limited choices, most made in country and were of ICRC design.
- Mobility Grades were quite variable; almost all prosthetic users attained level III activity.
- General observations of prostheses:
  - All users were full time users
  - All sockets were hard and had open ends
  - Only one liner was seen
  - Only traditional PTB's were used for trans-tibial amputees
  - The few ischial containment sockets seen were well fabricated
  - It appeared that only one technology is available
  - Graduate Deficiencies:

    Assessments as documented in medical records were center dependent with NIP, Thai Binh and Da Nang doing universally quite well. VIETCOT and Ho Chi Minh Rehabilitation were quite variable and Can Tho had none.

    Medical record availability to the provider was center dependent. They were always present at DaNang and NIP, 50% of the time at VIETCOT and Ho Chi Minh and universally absent at Bach Mai, Thai Binh and Can Thou. At Can Thou providers worked without benefit of measurements or assessment documents.

School Related Observations

Overall the school is well respected and graduates were found to be knowledgeable, valuable members of the rehabilitation team. There were many requests for upgraded or updated training.

The school may want to consider ways to help clinicians to improve record keeping. This may benefit not only client record keeping but may improve communication within the rehabilitation team.

Specific Conclusions of the Evaluation Team:

- The ISPO Field Visit team was able to acquire a valid and complete assessment of the level of care provided by VIETCOT graduates.
- The VIETCOT graduates did demonstrate that their training had sufficiently prepared them to deliver prothetic/orthotic services at an appropriate level.
- The evaluation team was able to acquire a good understanding of the needs for additional services for disabled persons in Vietnam.
- The evaluation team feels that they have arrived at a valid evaluation instrument for acquiring data during the graduate evaluation process, though it may require further modification for specific needs at other sites.
- As a result of this evaluation recommendations can be made to VIETCOT for improved educational programs.
- Pre-visit preparations by Mr. Thanh and VIETCOT where outstanding and facilitated an effective and efficient field visit.

Evaluation Process

- Pre-visit collaboration is essential to arrive at a meaningful field visit protocol.
- Daily debriefings allowed for effective modification of the evaluation process during the field visit.
- Frequent discussions about evaluation findings helped insure a complete assessment of each graduate.
- Because there was generally acceptable graduate performance attention could be directed by the team to global issues of service delivery. This was felt to be a valuable part of the overall evaluation effort.

- The team size consisting of five members helped in constructing an effective evaluation process but was larger than may be needed after graduate evaluation procedures are established.

Graduate Issues

- Over all graduate clinical skills were acceptable and demonstrated a strong educational experience.
- Orthoses and prostheses were generally well fabricated, fit appropriately and served their expressed treatment goals. Any limitations on these factors were due to limited resources and not practitioner skills.
- Gait assessments and application of biomechanical principals were found to be deficient.
- There is no follow up.
- Dress, cleanliness and overall appearance were felt to be unprofessional.
- Work areas lack cleanliness and orderliness.
- Workshop safety is marginal to nonexistent.
- We found no device check out forms.

School Issues

- VIETCOT is well recognized by all of the rehabilitation facilities visited as the qualified leader in prosthetic/orthotic services in the country.
- VIETCOT is understood to be the only source for prosthetic/orthotic education in the country.
- There is a great need for increased numbers of graduates.
- VIETCOT is not functioning at its full capacity due to limited funding resources.
- Aside from being placed in teaching roles, graduates with Cat I training are not being utilized effectively.
- There is a need for better education in practice management skills; record keeping, documentation of client evaluations, professional presentation, importance of client follow up and workshop safety.
- There is need for greater financial support.
- There are no programs for seeking additional funding resources.
- There appeared to be limited bench technician availability.
- ISPO-sponsored short courses have been well received and have contributed to an awareness of ISPO and VIETCOT throughout Vietnam.
- There was a frequently heard desire for post graduate education for improved skills.
-

Country Issues

- There are an estimated 94,000 amputees with a projected 2,880 Prosthetist/Orthotist need.
- MOH and MOLISA function differently in how they provide services for persons with disabilities. This is problematic to efficient service delivery.
- Disabled Person Organizations except as sports clubs are prohibited by governmental policy.
- There are no CBR activities working with prosthetic/orthotic services.

Recommendations

The following recommendations can be elaborated on. They reflect brain storming by the team at the end of the field visit. Some may already be in effect and clearly they can be prioritized. They are meant as suggestions for improvements in each of the three areas.

Evaluation Process

- Careful preparation to include;
    - Clear objective setting
    - Site preparation for client and graduate confidentiality
    - Familiarity with data forms
    - Attention on interviewing techniques.
- Provide an introduction of the local context and existing prosthetic/orthotic activities for the evaluation team at the outset of a field visit.
- Keep in mind the importance of interviewing workshop administrators to gain better insight into operational issues.
- Develop/improve data gathering forms for future evaluation teams to use for school, service centers and country data gathering.
- Expanding the evaluation process to include centers and national prosthetic/orthotic resources.
- Provide detailed expectations to centers in advance of the visit to insure an efficient and thorough evaluation process,
    - Types of clients, age and environment
    - Types of devices, old and new, levels and components
    - Work space for orderliness and confidentiality
    - Available client records and forms and educational materials.
    -

VIETCOT

- Consider a model where rehabilitation facilities desiring prosthetic/orthotic services pay for the education of students who would return and fill their needs.
- Sponsor seminars for physicians to help develop better prosthetic/orthotic awareness, team approach and cross discipline respect.
- Improve the understanding among graduates of:
    - Documented evaluations
    - Use of client and device check out forms
    - The importance of accurate and complete record keeping
    - Importance of client follow-up
    - Cleanliness and organization of person and work space
    - Professional appearance of clothing
    - Safety in the workshop
    - Poor working conditions reflects on the quality of education
- Develop a marketing strategy for the school
    - To attract students
    - To attract clients
    - For fund raising
    - To improve awareness of prosthetic/orthotic services in general
- Advocate for Disabled Persons Organizations this has recently been initiated by a June, 2010 Disability Law in Vietnam.
- Advocate for quality as an outcome measure rather than quantity.
- Better utilize CAT I graduates
    - Specialized service provision situations
    - Supervision of work shops
    - Mentoring of Cat II workers
- Improve/update components made in country.
- Improve English skills for faculty and for all graduates as a means for continuing education in the field post graduation and for accessing international resources.
- Broaden the training of bench technicians in order to improve capacity in the workshop.
- Although we all profess the importance of the team approach to care this needs to be emphasized at the school as we saw little evidence of its practice in any of the workshops.
- Improve gait assessment skills and an understanding of gait biomechanics in graduates.
- Improved clinical understanding of residual limb care issues, Cerebral Palsy and diabetes as common pathologies deserving improved consideration and understanding.

Future ISPO Considerations

- Extend the evaluation process to include country needs, workshop facilities and prosthetic/orthotic service delivery in general.
- ISPO to review its scholarship award policies in order to address resource needs in Vietnam.
- Expand short courses and follow up topics with related follow up mentoring at the local level.
- Sponsor cross discipline seminars for physicians on the team approach, prosthetic/orthotic awareness and cross discipline respect.
- Develop a packet of client evaluation and patient education forms for use by schools. We saw none in use.
- Develop a postgraduate continuing education point system.
- Develop mentoring programs in schools for workshop administrators, physicians, and therapists directed to improved outcomes in effective prosthetic/orthotic delivery.
- ISPO should support and mentor VIETCOT in methods to advise government ministries in future efforts to further develop prosthetic/orthotic services in Vietnam.

Appendices:

a. Instructions for evaluation teams
b. Orthotic data collection instrument
c. Prosthetic data collection instrument

Interviewing Techniques and Evaluation Form Utilization

1. Interviewing techniques
    a. Ask open ended questions, avoid quizzing the graduate, but rather suggest that they tell you about their patient, tell you about their device, critique their own device, is there anything you would do differently? What factors are important to you, why, did you accomplish them? Get inside their head and discover what they are thinking.

2. Don't allow the language interpreter to interpret your questions, don't allow them to elaborate on them, insure that it is your question that they are asking and not one that gives away the answer to what you are looking for.

3. Don't criticize or make suggestions on what you would do unless the graduate asks you. Be sensitive to their feelings and the confidence the client has in them.

4. End with questions like, "Do you have anything you would like to add", "How do you think you did", "Do you have any questions of me"?

5. Remember the purpose is to evaluate how they are doing, not to test them.

6. Take time to complete the evaluation form and discussions after each client session.

7. Insure confidentiality and privacy for the evaluation process.

Lower Limb Orthotics

Service Provide Evaluation Form

Section 1:

Client Identifier_____ Team_____ Recorder_____

Evaluation Site_____ Date_____ Ministry_____

Sponsoring Organization_____

Orthotic Provider (Graduate) _____ Year of Graduation_____

School_____ Cat Level: I II Other_____ Gender M F

Experience since graduation_____

_____

Section 2:

Client Information (Presented by service provider)

Age_____ Gender: M F Cause of Disability_____

Age at Onset_____ R_____ L_____

Description of physical disability_____

_____

Related surgeries_____

Functional demands: Environment_____

Terrain_____

ADLs _____

Previous orthotic use_____

_____

_____

Section 3:

Patient assessment:

Records available: Yes No Complete: Yes No

Elaborate_____

Is an adequate assessment recorded in the record? Y N

Elaborate_____

_____

Discuss with the orthotic provider Her/his evaluation of:

Range of Motion
Muscle Grading
Leg Length Inequality
Joint stability
Deformity
Pain, location and characteristics

Sound leg function: 100%_____ 50%_____ 0%_____

Functional grade of client with orthosis I_____ II_____ III_____ IV_____

Orthotic use: Intensive (full time) _____ Moderate (4-8hrs.)_____

Light (<4hrs) _____ Does not use_____

Does orthosis meet client's needs? Y N Explain_____

_____

Is the device appropriate? Y N (Evaluators opinion)

Explain_____

_____

_____

Section 4:

Orthotic Construction and Durability

Describe Orthosis_____

Did the Service Provider fabricate this orthosis? Y N

Age of orthosis: Right_____ Left_____

Follow up: Y N Explain_____

Using most recent device? Right: Y N Left: Y N

Functional needs addressed:	Were goals met?
Deformity	Y N
Paralysis	Y N
Instability	Y N
Wt. relief	Y N
LL Inequality	Y N

Construction adequate:

Foot Position	Y N
Foot Plate	Y N
Trim Lines	Y N
Thigh shell volume	Y N
Leg shell volume	Y N
Joint selection	Y N
Joint alignment	Y N
Strap placement	Y N
Padding	Y N
Fit	Y N

Elaborate_____

_____

_____

_____

_____

Section 4 continued:

Materials:

Thigh Shell_____

Leg Shell_____

Joints_____

Straps_____

Uprights_____

Evaluate appearance_____

_____

Areas needing improvement_____

_____

_____

Section 5:

Service Provider Discussion: (Needs to justify her/his conclusions)

Selection of materials and components:

Evaluate_____

_____

Orthotic Fit:

Evaluate_____

_____

Section 5 continues:

Foot Position and Control:

Evaluate_____

_____

_____

Static and Dynamic Alignment:

Evaluate_____

_____

_____

Joint selection and position:

Evaluate_____

_____

Gait Deviations? How would this provided correct them?

Evaluate_____

_____

_____

Craftsmanship: Good_____ Acceptable_____ Poor_____

Elaborate_____

_____

Is the orthosis appropriate for this patient? Y N (Graduate's opinion)

Quality of construction Excellent___ Good___ Fair___ Poor____

Does Service Provider agree with indications and adequacy of current orthosis?

Elaborate_____

_____

_____

Evaluator's comments_____

_____

_____

_____

_____

_____

Comments for school_____

_____

_____

_____

_____

Evaluator signature_____

Lower Limb Prosthetic
Service Provide Evaluation Form

Section 1:

Client Identifier_____ Team_____ Recorder_____

Evaluation Site_____ Date_____ Ministry_____

Sponsoring Organization_____

Prosthetic Provider (Graduate) _____ Year of Graduation_____

School_____ Cat Level: I II Other_____ Gender M F

Experience since graduation_____

_____

Section 2:

Client Information (Presented by Prosthetic Provider)

Age_____ Gender: M F Year of Amputation_____ Level R_____ L_____

Cause of Amputation_____ Congenital_____

Related Surgeries_____

Functional demands: Environment_____

Terrain_____

ADLs _____

Previous prosthetic use_____

_____

Section 3:

Patient assessment:

Records available: Y N Complete: Y N

Elaborate_____

Is an adequate assessment recorded in the record? Y N

Is there follow up data in the chart? Y N

Discuss with Prosthetic Provider her/his evaluation of:

Residual Limb
Skin Condition
Range of Motion
Muscle Strength
Presence of Pain and its Characteristics
Level Pelvis

Elaborate_____

_____

_____

_____

Sound leg function: 100%_____ 50%_____ 0%_____

Prosthetic use: Days per week _____ Intensive (full time) _____

Moderate (4-8hrs.)_____ Light (<4hrs) _____ Does not use_____

Does prosthesis meet client's needs? Y N Does client agree? Y N

Did Prosthetic Provider perform an appropriate evaluation/assessment of client? Y N

Elaborate_____

_____

Section 4:

Prosthetic Components and Fabrication:

Prosthesis provider to list treatment goals _____

_____

Did the service provider fabricate this prosthesis? Y N

Age of device: Right_____ Left_____

Comment on the durability of the limb_____

Prosthetic Design	Right	Left
Exoskeletal		
Endoskeletal		
Total contact		
Open Ended		

Socket Material	Right	Left
Thermoplastic		
Laminated Resin		
Aluminum		
Wood		
Other		

Socket Design	Right	Left
Quadrilateral		
Ischial Containment		
PTB		
PTS		
Other		

Foot	Right	Left
Single axis		
Multi axis		
SACH		
Molded SACH		
Energy storing		
Other		

Suspension	Right	Left
Vacuum		
Vacuum/sleeve		
Supracondylar		
Cuff Strap		
Waist belt/corset		
Other		

Knee Joint	Right	Left
Swing phase		
Stance phase		
Polycentric		
Uni-axial		
Side bars		
Locked		
Other		

Other, describe_____

_____

Liner Y N Describe_____

Is Socket/Suspension appropriate? Y N

Elaborate_____

_____

Section 5:

Service Provider Discussion: (Needs to justify her/his conclusions of current Prosthesis) (Team to evaluate techniques and comment)

Functional grade of client with prosthesis I_____ II_____ III_____ IV_____

Is pelvis level? Y N Observe provider

Selection of above components:

Evaluate provider's choice_____

_____

_____

Is socket fit satisfactory? Y N

Elaborate_____

_____

_____

_____

Is static and dynamic alignment satisfactory? Y N

Elaborate_____

_____

_____

Is joint position satisfactory? Y N

Elaborate_____

_____

Is foot position satisfactory? Y N

Elaborate_____

_____

Were gait deviations identified? Y N

Provider's suggestions for improvement_____

_____

_____

Craftsmanship: Good_____ Acceptable_____ Poor_____

Elaborate_____

_____

Does Service Provider agree with the appropriateness of current prosthesis? Y N

Elaborate_____

_____

_____

Did Provider take into consideration the client's environment and needs in prosthetic choice? Y N

Elaborate_____

_____

_____

Section 6:

Evaluator's comments_____

_____

_____

_____

_____

_____

Comments for school_____

_____

_____

_____

_____

_____

Evaluator Signature_____