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Prosthetics & Orthotics A Personal View From Cambodia

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Landmine victims have been the focus of attention since the formation of the International Campaign to Ban Landmines (ICBL), and this naturally peaked in 1997 with the signing of the Ottawa agreement. This event, while incredible, needs to be looked at as part of an ongoing process in the rehabilitation of people with mobility impairment living in low income. These are often considered as only landmine victims, but the context is wider. While the continuing work of ratification, awareness raising, advocacy planning etc. goes on, it is useful to look at the context of the ongoing work in rehab, the lessons learned and the challenges still to be faced.

The work in victim assistance (VA) is dynamic, a pillar with little history. The prosthetic industry as we know it today in the developed world is little more than 35 years old. We are learning and the countries themselves are learning. We have no need however to reinvent the wheel when it comes to planning; so much has been done already.

For the past six years I have worked in Phnom Penh, Cambodia, with a small British organization called The Cambodia Trust. Cambodia is well known to many as one of the world’s most densely mined countries. It has suffered nearly 30 years of war, as the conflict in Vietnam spilled across its borders, but is also infamous for the Pol Pot regime in the mid-70s. After that dark period the country was isolated from the international community until the late 80s making it desperately poor and under developed. The intellectual middle class had been wiped out by the genocide leaving a largely peasant population where literacy was virtually zero. The Civil War, post-Pol Pot, lasted until the Paris peace accord in 1992, and up until earlier this year there was still sporadic fighting and displacement as the hard-liners held out in the jungles. As a result the country is extremely poor, civil society is embryonic, and education standards are low. More than 80 percent of the population are subsistence farmers with little access to a cash economy. It is against this backdrop that some 160 organizations, including Cambodia Trust, are working.

The trust has been working in Cambodia since 1992 and has developed three prosthetic service centers under the auspices of the Cambodia Trust Rehabilitation Project in Kompong Som, Kompong Chanang and Kieng Svey. It is the largest service provider in Cambodia, producing more than 1,200 prostheses and 400 orthoses in 1997-1998. The trust’s largest project, The Cambodian School of Prosthetics and Orthotics (CSPO), which includes a large rehab clinic, is based in Phnom Penh, the capital. The CSPO is the national training scheme for Prosthetics and Orthotics (P&Os) and works in collaboration with five other organizations: American Friends Service Committee (AFSC), Handicap International, Veterans International, American Red Cross and International Committee of the Red Cross, and of course with the government of Cambodia to build human resources in that country. The school has been working very closely with the International Society for Prosthetics and Orthotics (ISPO) to bring the curriculum within the guidelines set down by ISPO in October 1997, for the training of Category II Orthopedic Technologists, or prosthetist orthotists.

Status of the CSPO

The CSPO opened its doors in 1994 with an intake of six students. In subsequent years the intake has risen to 12 and as a result we have now three graduating classes with 27 new Prosthetist/Orthotists and another 43 in the pipeline. As we reach our initial estimated 1993 target of 60 graduates for the Cambodian service, we have looked more seriously at developing a regional role, and for the first time, last year, we took two students from the Laos Peoples Democratic Republic. This year we have six from Laos, two from Sri Lanka and one from the Solomon Islands. The remaining three are Cambodian. One possible future for the CSPO is that we generate income by taking in fee-paying overseas students while retaining a small number of cheap or even free places for Cambodians. This would allow us to maintain the...
Disability in Low-Income Countries

In mine-affected countries such as Cambodia, the vast majority of disabled people are young. Mine-victim amputees are virtually all in their 20s, with up to 70 percent of them being injured military personnel. Cambodia has a young population, an adult life expectancy of lower than 50 years, and an average birth rate of under 18, with a population more than 60 percent of the total. So the requirements for the performance of a prosthetic or orthosis is very different to that of the developed world. To begin with, the standard of an amputation is often lower, resulting in amputees with poor distal soft tissue or aseptic scar, or with general poor skin cover. The nature of landmine injury is such that amputation is done in several stages. The initial damage to the limb may look relatively small but it is usual to find that actual subcutaneous damage extends much further than external inspection may indicate. The hot, high pressure gases associated with the blast will have inflicted the limb prior to the rupture of the skin so causing what might be described as a delamination type of injury not readily observable. Dirt and foreign materials will be driven with great force into the limb, so giving great concern for infection. So the normal method of treatment is the so-called "open amputation" where the stump is left unsutured for several weeks while daily debridement is carried out. Closing the stump before all foreign objects have been removed very seriously increases the risk of infection. The procedure is not well suited to giving good results in myelitis, so resulting in poor distal end results and whether or not you really need to fit a true total-contact prostheses with any degree of real end bearing. This coupled with a young active amputee will make prosthetic fitting rather critical. It must be remembered that these disabled young people will receive little or no social service support, and may be cast out by society to fend for themselves. So prostheses must fit and function well, the patient's ability to feed himself or his family may depend on it.

International Standards in Training of Staff

This problem has been haunting us at CSPO since the very beginning. Some agencies feel the criteria are too strict and use some form of prosthetic/orthotic qualification. Some feel that the time periods of training are too long and that prosthetists/orthotists should be trained in a matter of months. Some feel we are being forced to accept a first-world standard that could not possibly be achieved in the Third World. Some think the standards can only be achieved by organizations with multimillion-dollar budgets. The above are not true, we have proved it.

Selection of Design

The setting and achievement of international standards are always important. Standards are by definition benchmarks; they are reality checks, mechanisms by which we assess our own progress, and especially by which we check our route map. The process of setting up education standards began in 1984 and was on a slow grind up to the present day. It has focused the minds of those who educate as well as those who pay for education, giving clear direction to governments, non-governments and donors alike. I believe that the education standards set by the International School of Prosthetics and Orthotics (ISPO) are probably the most enduring legacy left by this body to the disabled of the developed world. How good it would be to see the same rigorous standards applied in the training of developed world practitioners.

Appropriate Prosthetic Technology

In 1995 the ISPO, with the U.S. Agency for International Development funding, held a conference in Phnom Penh to look closely at the vexed question of appropriate prosthetic technology for the developing world. This discussion had raged for several years, with various agencies adopting wildly differing views on just how we could deal with the huge numbers of limbless in the world. I first became aware of the dispute in 1993 on arrival in Cambodia, having naively assumed that the P&O community would be one big happy family united by the cause. There were, at that time, seven agencies and it seemed almost as many different technologies in use.

Up-caster instruction at the CSPO, via Canon Blake

Selection of Feet

Prosthetic feet remain a subject of tremendous debate. Naturally there has been considerable work carried out to try and build a foot locally, one that is durable, light and cheap. The importation of west...
ern feet has been inappropriate since the humidity, heat and the local flora and fauna lead to very rapid degradation of the materials to natural rubber remains the material of choice. There have been several designs of rubber feet, some using wooden leeks, which are rather prone to rotting and some using polypropylene leeks, which are rather prone to pulling out. As a prosthesis, the main difficulty with these is the lack of an effective in situive heel cushion. The other problem is of course weight, with the device being probably twice that of a standard SACH. This must be placed in the context of a young active population and a price tag of around $4. Much research continues to take place, with recent developments in keel material and shape. Recent innovations include a low profile foot for ankle disarticulation patients and atomen to pro design in some are in recovery. The low profile foot because of its reduced material content, makes quite a difference to the weight problem.

ICRC System With and Without Cosmesis

The ICRC, American Red Cross and AFSC occupied the middle of the road. They were committed to a rather nice, locally designed and manufactured modular system. Sockets were in polypropylene (PP) with mild steel componentry with some made in recycled injection molded PP. This system worked well, and was relatively easy to use. It was designed and built by a team of prosthetists and engineers working together. Over the past few years the system has been refined to make more use of recycled PP and titanium. These were relatively stable countries with less of steel, making a quite usable, low-cost device. It is now Cambodia’s standard prosthesis, replacing the other options in each agency. Complete ranges of components are now in place, addressing all levels of amputation.

Patient Safety

The 1995 IStO consensus conference pointed out that all techniques used in the Third World should be fully tested and safe. New technologies should never be tried out on the poor, who may be available and grateful for anything. They should not be field tested without proper safeguards for all. The

consensus conference also noted that expensive solutions could also divert useful resources and so deprive other sectors with disability needs.

Who Pays and How

It is normal in the world of international development that projects like these have a life cycle. They have a beginning, middle and end. In rural development, the beginning is a needs assessment where the communities’ deficiencies are identified and a process of support planned. The middle part is the implementation of the plan on the patients’ input. The third part is the evaluation. In this the objectives are re-examined, performance indicators applied and the project declared a success or failure. From the final reports, much is learned and the project is continued or repeated. This model is well established.

In emergency relief the needs assessment is usually foreshortened. In cases of famine, a few days are spent trying to establish the size of the problem and the amount of relief needed plus supplies required to deliver the service. Money is raised, and the program swings into action. Lives are saved and once the emergency is passed a very short evaluation is carried out so lessons learned in logistics can be transferred to emergency relief programs. The model is well established and in place, and there are many expert organizations in the world who can execute such measures in a matter of days. It is sad but true, however, that emergencies happen quickly but are solved slowly, so often from emergency relief comes forth development programs. Refugees can rarely return home to wrecked countries without some sort of development assistance or infrastructure investment.

Prosthetics and orthotics really fit into the former role model, especially in the scenario where education is involved. Indeed such was the case in Tanzania, Togo and China when the German governments, through GTZ, set up training schools for medical officers, teachers and students. The projects are unique, with unique problems that need unique strategies.

It is easy for the western countries to say that governments should be responsible, and that new programs should be handed over to governments, but when the system doesn’t work, what can new programs do?

The first question is. “Who is responsible?” In answering this we should be very careful to free our minds from the constraints placed upon them by our own experience. For those from the UK there is a natural tendency to try to create the beloved National Health Service. For Americans the tendency is to opt for private-sector solutions. Who is right? Naturally the thinking of so-called policymakers differs. It is easy for the western countries to set up a task force, which lasts for a year, and in that time we surveyed the country, looked at all the agencies associated with disability and began the process of national planning. Out of that came a new body called the Disability Action Council (DAC). Since 1997, the future is at last being addressed. The DAC is a semi-government, semi-NGO group developing plans and an agenda for the years to come. This is a unique, with unique problems that need unique strategies.

In the conflict or immediate post-conflict situation, the difficulties are greater. Usually the governments are dysfunctional or are under severe stress. Infrastructure in general is reduced and other priorities overshadow those for the disabled. In the last 10 years, even greater obstacles have emerged. Not only have some countries emerged from conflict but they have seen the collapse of the whole philosophy of government. Countries such as Cambodia, Laos, Mozambique and Angola have also to embrace capitalism as a new way of life. So in many cases we will be faced with a government fully committed to the role of provision, but unable to do so due to ineptitude and the collapse of the economic system. These are unique times, with unique problems that need unique strategies.

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We are well aware of the problems, and we are well aware of the consequences. We are also well aware of the shelf life this outside support has. How long will it be fashionable to support disabled in the Third World once the spotlight of the mankind issue grows dim?

So What Is the Point?

In a place like Cambodia, the point is simple. Put people who should be working back to work. The numbers of disabled are disproportionately high and the resources disproportionately low. With the right kind of infrastructure and assistance we can release the potential of tens of thousands of work-aged people to contribute to the development of their own country.

The technical staff is finished, the training also, the buildings are in place and the training begins. The biggest challenge is now being faced, and the objective is new and clear: the disabled are not to be helped, they are to be helped to help themselves.

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