

SPECIAL REPORT

A REHABILITATION TRAINING PARTNERSHIP IN MADAGASCAR

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We describe here the development of a mid-level training programme for doctors in Madagascar to direct regional and national rehabilitation services. Eight doctors enrolled and all gained their diplomas and have gone on to form the Association of Physical and Rehabilitation Medicine of Madagascar, which is leading further training and service developments. The course was specific to Madagascar's needs, and was devised according to the vision of the senior rehabilitation specialist in the Ministry of Health in Madagascar with support from the University of Antananarivo. The syllabus was developed with a senior Rehabilitation Medicine consultant responsible for setting up a comprehensive range of services and teaching in a University teaching hospital in the UK. Major barriers to success include the economic and political situation in Madagascar, which worsened steadily over the period of the training, the lack of resources for health, rehabilitation and rehabilitation workshops, and the withdrawal of aid. The sustainability of the training and the improved services that have been initiated will be evaluated, but these will be influenced by the situation of the country. It is hoped that this description of a highly practical training using modern teaching methods will be of use in other low-resource countries. Much of the teaching input was given by clinicians from a UK teaching hospital, and this resource will continue to be needed.

Key words: Madagascar; rehabilitation; teaching.

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INTRODUCTION

Many (approximately 200) National Health Services (NHS) hospitals and services in the UK have been encouraged to form interdepartmental, sustainable links with similar units in developing countries following the Crisp Report (1), and these benefit both partners. However, these links have rarely been between practitioners of rehabilitation with the aim of delivering accredited postgraduate education.

We describe here the development of a mid-level Diploma in Rehabilitation Medicine (DU), which was jointly developed

and then delivered in Madagascar by teams led by a consultant in Rehabilitation Medicine in Madagascar and their counterpart in the United Kingdom (UK). Such joint working may form the basis of similar partnership of clinicians in many countries. It does not undermine the establishment of community-based rehabilitation (CBR), but builds on this level of expertise at regional centres with which CBR may usefully link.

The initial scoping exercise was undertaken by a team from Leeds Teaching Hospitals NHS Trust (LTHT) (through the charity Opt in; www.Optin.uk.org) in 2008 and was successful in agreeing 3 programmes of training with senior medical staff in Madagascar in rehabilitation medicine, ophthalmology and nursing/infection control. This scoping visit was followed by a return visit to Leeds to ensure that the Malagasy team had a clear understanding of the methods of working in a large hospital complex in a major university city in England. A memorandum of understanding was then signed. The University of Antananarivo was represented and continued to give support.

MADAGASCAR

The needs of Madagascar

Madagascar (population 23 million) is vast and many areas, as well as rehabilitation centres, are remote. Communities may be isolated and cut off in the rainy season. As in many less-developed countries, there are few statistics concerning the prevalence of disability in Madagascar, but a survey by the Ministry of Health of Madagascar in 2003 (2) estimated that at least half a million persons with motor disabilities could be helped if they could access appropriate treatment. Most doctors did not know how to provide this, or how to deal with complex disabilities, thus reinforcing the stigma and lack of integration experienced by disabled people.

Rehabilitation services in Madagascar were seen to be insufficient in number and not functioning well due to lack of qualified staff. Only 6 of the 9 public Rehabilitation and Prosthetic and Orthotic Centres working at provincial and regional levels were managed by doctors.

The doctors, mainly seconded from general practice, had had no previous specialist training: continuing education was rare in many specialist areas of medicine and in physiotherapy. There were very few doctors or physiotherapists per head of population, as is the norm in many developing countries (see

the World Health Organization (WHO) 2011 World disability report (3)). There were no occupational or speech therapists.

A traditional 4-year consultant training could not be provided with only 2 qualified consultants in rehabilitation medicine in the country. One worked in the Ministry of Health being responsible for non-communicable diseases, and both worked in the capital. Training to the intermediate level of a *Diplôme Universitaire* (University Diploma) (DU) was proposed. The authors devised the curriculum and training programme. The programme was further developed together with the UK trainers.

The aim of the proposed teaching programme was to produce a cadre of medical practitioners, specialist in rehabilitation medicine, to lead rehabilitation in Madagascar, and together effect change and deliver a better network of clinical services at national, regional, district and community levels.

Teaching objectives

The training would enable doctors to:

- Identify and assess the impairments linked to common pathologies responsible for disabilities.
- Identify and prescribe the appropriate rehabilitation treatment at both hospital and community level.
- Manage and co-ordinate a multi-disciplinary team (MDT) able to set up a rehabilitation programme for the disabled person whom they were treating.
- Collaborate with medical staff, such as general practitioners (GPs), specialists of other disciplines, social workers, and other public and private entities caring for disabled people.
- In conjunction with health authorities, including local ones, contribute to the creation of hospital and community services best adapted to disabled people.
- Contribute to training in the area of rehabilitation.

The results expected would include:

- Each university hospital and rehabilitation centre would have its own Rehabilitation and Prosthetics and Orthotics Centre.
- Each district would have its own (often basic) rehabilitation service.
- Improved accessibility of rehabilitation treatment for patients and support for community-based rehabilitation services.
- Treatment protocols to enhance the level of practice.
- Improved competence of the doctors in these centres.

Production of the Diplôme Universitaire course content

The University of Antananarivo was responsible for the agreed DU, and the hours of theoretical teaching, directed activities and practical work were clearly specified. The curriculum related closely to the rehabilitation needs of the local population. It could not be transposed from a European diploma, but the comprehensive training detailed in the White Book on Physical and Rehabilitation Medicine in Europe (2007) was a useful starting point (4). Although the epidemiology of disability in Madagascar is unknown, practitioners were aware of the common conditions presenting to rehabilitation centres

(where all ages are seen). What the rehabilitation physician will be called on to treat will also vary with the availability of related specialties. In many hospitals the full complement of specialists considered necessary in Europe may not be present. Also, some rehabilitation departments were within hospitals, while others were stand-alone.

There were also other barriers to delivering a course based on one given in a developed country: many patients were too poor to pay for complex treatments or drugs even if available; standards of infection control might not be high, so it might not be wise to inject joints without continuity of care, or to use botulinum toxin or steroids.

Few doctors could afford regular access to the internet, so the wealth of online teaching material was unavailable. Most did not speak or read English. Syllabuses and texts for European Union trainees were inappropriate: they often dealt with medical conditions not seen in Madagascar. Some help was gained by using David Werner's books "Disabled Village Children" (5) and "Where There is No Doctor" (6).

The proposed DU was approved by the University of Antananarivo.

Syllabus

The DU syllabus was divided into Principles of Rehabilitation, Loco-motor, Neurological, Paediatric and Technical rehabilitation areas. The designated proportions of time were adhered to as closely as possible. A total of at least the agreed 400 h (50 days) teaching was given by the UK and Malagasy teachers.

COURSE PREPARATION, DELIVERY AND CARE OF THE UK TEAM

Training

Most of the on-site training was devised by trainers from the UK once the syllabus was approved. Two or 3 visits of 2 weeks per year were made for 2 years by 2 or 3 rehabilitation physicians, those in related specialties, e.g. neurologists (HF) and physiotherapists, occupational and speech therapists. They used their annual leave to deliver this training, but flight and basic accommodation costs were provided. Funding for the programme was supported jointly by the charity Opt in and Leeds Teaching Hospitals NHS Trust (LTHT).

The teaching group defined their precise programme for the 2 weeks, relating this to the DU curriculum, and agreed the topics and the methods of delivering interactive and stimulating teaching. They produced PowerPoint slides, small teaching videos and exercises. Some were experienced clinical teachers, and others were more recently qualified, but were working in teaching environments, usually also teaching parents and patients. Considerable dedication was needed to do this work in their spare time. The teaching material was sent to the translators 3 weeks before teaching began.

Most of the trainers had not worked in a low-resource country and were likely to be concerned by the situation in which they saw their colleagues working. They met those who had

been out teaching before, read the in-house induction manual and a travel guide to the country. Insurance and immunizations were provided.

Language

Whilst Malagasy is the language used all over Madagascar, French is its official language; however, few healthcare staff in the UK spoke this to the high level required. Translators, who were graduates of the English Department of the University of Antananarivo, worked with us.

Course delivery

The proposed DU training had been planned by 2009, but due to the 2009 coup and political crisis in Madagascar the training programme could not be started until 2011. It was agreed with the Dean of the Faculty of Medicine that the teaching should be multidisciplinary, as rehabilitation is most effectively practised as a multidisciplinary activity. This was partially successful on evaluation at 1 year, when it was suggested that basic knowledge and common skills should be acquired together in morning talks and exercises, but specific clinical skills for doctors and physiotherapists would be addressed separately in the afternoons.

Continuing instability and worsening poverty in the country limited the teaching to the capital and only one provincial centre (Mahajanga). All 8 trainees managed to attend for all teaching, and the full DU training course and examinations were undertaken from 2011 to 2013.

Teaching methods. The programme was taught using interactive methods and emphasized the importance of acquiring good clinical skills. Journal articles were reviewed so that participants could use an evidence-base for clinical practice. The participants also worked in multidisciplinary groups (which were regionally based in order to develop links) to complete tasks; for example, an information leaflet for patients with backache or for parents of children with cerebral palsy or a liaison form for interacting with acute wards. They then gave a presentation, which was formally assessed. Many information leaflets were superbly produced and formed the basis of on-going information from that centre.

Examinations. Examinations were undertaken throughout the course as continuous assessments. Written examinations, and examinations of the clinical skills of history taking, clinical examinations and diagnosis (as Objective Structured Clinical Examinations (OSCEs), as in the UK) were completed at the end of the first and second years.

Specifics of the course

Some parts of this course are probably unusual and are worth commenting on.

Human rights. Although Madagascar has signed the United Nations (UN) Convention on Human Rights, it is important

that clinical staff provide a clear lead on the rights of persons with disabilities. Teaching was given by a member of the local Handicap International Team.

International Classification of Functioning, Disability and Health (ICF). The ICF was used throughout teaching and exercises.

Multi-disciplinary team (MDT) working. Multidisciplinary rehabilitation is effective (7), but it may not be easy for those trained in a hierarchical system to immediately appreciate the merits of such working. MDT was introduced as a normal method of working and assessment, e.g. all working groups had to design and present a referral protocol.

Access. The rehabilitation unit where we taught had poor access to and within the department. It was agreed that rehabilitation departments should be models of good practice to show their hospitals what an accessible department looked like (including the toilets). This would help, eventually, to ensure that disabled people had access to the full range of hospital services.

The exercise to inform on good access features for all the departments in which the attendees worked was combined with learning about how to audit a feature of a service, with presentation of the initial features of their departments and a repeat audit at 1 year.

Audit. The same learning about audit was applied to the documentation of patient records; the concept was difficult, so progress was reviewed at 1 year. Record-keeping was usually poor and did not provide any useful information for management on workload, which was usually high. Audit teaching was combined with teaching on the value of epidemiology and the production of basic data for a department.

After this training simple agreed data is routinely collected in all departments.

Clinical skills. In the widespread absence of modern radiological facilities, such as magnetic resonance imaging (MRI) and computerized tomography (CT), physicians have to rely on their clinical skills. Given that the therapeutic options were also limited, the ability to make good clinical assessments assumes critical importance.

Given the difficulty of maintaining good clinical skills when working in an isolated facility, the development of a national clinical group who continue to learn together is crucial.

Research. The University of Antananarivo requires that all DU candidates complete a research study. In practice they used qualitative and questionnaire-based methodologies. Teaching was geared to this requirement and provided the opportunity to consider the ethics of research and the need to provide patients with information in comprehensible terms

Introductions and feedback. At the beginning of every course the Malagasy participants introduced themselves and their work. The new teachers did similarly. At the end the Malagasy

doctors sent the course organizer an e-mail listing the 10 most important things they had learnt and the 3 changes they would make. At the next course they stated what changes they had effected.

Practicalities of the course. Many practical difficulties were experienced by attendees, and considerable care was taken to ensure that teaching was accessible after the course had finished using photocopies and memory sticks. The costs of such resources were met by the UK funders.

Evaluations carried out at the end of each lecture gave no indication as to how teaching could be improved. Therefore a full mid-term evaluation was also performed. This stated that the course was “remarkably successful and was resulting in many changes in practice, perhaps even the birth of the specialty of rehabilitation medicine in the country” (8). Training methods were applauded. The recommended minor changes were made.

Outcomes

Eight doctors chosen by examination joined the training and completed the diploma, passing all clinical and written examinations. They have since established the Association of Physical and Rehabilitation Medicine of Madagascar. This has expanded its membership, opened its teaching to others, and started a series of national training congresses.

The midterm evaluation is to be followed by a final evaluation in 2015 (Appendix I–IV).

SUBSEQUENT DEVELOPMENTS

The Association’s first well-organized congress was partly designed to improve the profile of rehabilitation at high levels, including ministerial level. The focus was on cerebral palsy and developmental disabilities of childhood, the impact of rehabilitation on the education of the child, as well on as good midwifery and neonatal practice.

Practical training on the management of the condition was then given by a UK team to some 60 clinicians to expand the knowledge-base at many rehabilitation centres. The Malagasy guide to practical management of cerebral palsy has been derived from the training manual.

Six months later a survey has shown that there are further training needs to sustain initial improvements. The UK team has planned further training to empower the Malagasy leaders in rehabilitation and help them support the parents of these children.

Spinal cord injury (SCI) rehabilitation has been entirely lacking in the public sector in Madagascar. Teaching of this subject began in 2013 and was given by a consultant (RPH) in that special branch of rehabilitation, using low-technology solutions. He continues to support the DU graduate who became head of the Department of Rehabilitation Medicine in the Antananarivo University Hospital, supporting the neurosurgeons’ practical management of patients with spinal paralysis in their ward. Bowel and bladder management and pressure ulcer prevention have been demonstrated to be improving. The neurosurgeons

now support the Physician in Rehabilitation Medicine and the Medical Director of the hospital in the planning of an adjacent 10-bed rehabilitation ward. Further training for the rehabilitation team in India is planned. The DU “graduates” have also undertaken an internet-based training in SCI in English with our translators present, and their use of English has improved. At the second Annual General Meeting (AGM) of the national association (APRM Mada) progress was reviewed and further training planned.

Sustainability

The agreed aim is that the specialty of Physical and Rehabilitation Medicine in Madagascar will be able to run effective rehabilitation services and teaching across the country within 5 years. This is a large demand given the length of time taken to reach the same point in Europe and the USA and the vastly different resources available. The Malagasy doctors are now running their training courses (with invited partner speakers). Further training and support is required in the short-term, from the partners in the high-resource country, to further develop their clinical rehabilitation skills and leadership abilities. The motivation for change is high, but the practical difficulties, especially in remote areas, are daunting where no benefits have accrued in individual remuneration, in resources available, or in understanding by others of what is being attempted. In most countries a specialty is based on its consultants. This presents a great difficulty where none are present to implement apprentice-style training. There are now Malagasy interns who wish to join the specialty, and the secondment of interns for a year to a comparable department in a francophone country is envisaged.

Development of other rehabilitation staff

The Malagasy author (SA) has been active in addressing with others the need for a school of occupational therapy, which is now established, and in pursuing funding for the training of technicians trained in orthotics and prosthetics. The vision is for a cadre of such staff throughout the country, who will then lead the training in their discipline. All these developments bring the practice of effective multi-disciplinary rehabilitation closer.

Vision for the rehabilitation centres and practice in Madagascar

All are clear that a network of regional centres, which are the teaching (and perhaps later the research) bases of rehabilitation in the country, is required. The regional centres will demonstrate good practice, which can be cascaded down to local hospitals, to primary care and community-based rehabilitation, providing referral for complex cases, support and teaching.

Some specialization of clinical areas of expertise amongst these practitioners will be required, with a network of services so that patients do not have to travel long, expensive distances for anything other than the most complex of problems.

Reflections

The systematic training course responding to local needs and leading to a DU in Madagascar with 8 “graduates” is probably the first of its kind documented in world literature, even though programmes of rehabilitation training in low-resource countries have been undertaken with high-resource partners. What was delivered in the training described here is consistent with the analysis in the chapter on rehabilitation in the WHO World Report on Disability 2011 (3).

We believe that all teaching objectives were met given the relatively small input and extremely difficult economic situation. The exact outcomes will be sought in the planned formal end-evaluation.

The training would not have been so effective without the determining influence of the author, who works at a high level within the Ministry of Health in Madagascar, but has experience in Europe, and who had a vision of what could be achieved. In addition, (SA); one of the UK partners (MAC) had long experience of the development of the specialty, training and research, having been in the specialty since its inception in the UK.

Training was practical, flexible, interactive, designed for clinical practitioners and responsive to emerging needs. It was highly valued, and produced many changes. It became clear that international visitors of standing and experience brought support and profile to doctors contending the extreme poverty of their patients and health system and lack of knowledge by colleagues, by health service and by other providers of what rehabilitation can do for patients. It is hoped that the independence of disabled people will be enhanced and more children with disabilities will be enabled to access schooling. The provision of access to a rehabilitation department should help in the campaign for access of disabled people to all health facilities, which is an aim of the WHO World Disability Action Plan 2014–2016 (9).

Those coming to teach from high-resource countries learn many relevant things, as outlined recently by Williams et al. (10); for example, how to manage diseases present in immigrants and asylum-seekers, alternative approaches to management, how to maximize the use of scarce resources, about global health issues and, perhaps of most importance, how to be advocates for the world’s children (or in our case the billion people with disabilities, most of whom live with few rights in developing countries).

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APPENDIX I. Changes in working practice. (Some of these changes were established in all centres)

- 1 Use of protocols for assessment of backache, child development, and spinal cord injury.
- 2 Use of simple standard documentation of new patients in all centres.
- 3 Use of patient and parent information leaflets.
- 4 Weekly MDT meetings.
- 5 Weekly MDT meetings with neurosurgeons to discuss acute SCI patients admitted to their ward.
- 6 Regular training on SCI rehabilitation using an internet-based accredited course (ISCO) in English with known translators.
- 7 Regular support to CBR team.

MDT: multidisciplinary team meeting; SCI: spinal cord injured; CBR: community-based rehabilitation.

APPENDIX II. Individual clinical practice improvements

- 1 Better clinical examination and history taking (demonstrated).
- 2 More knowledge and competencies.
- 3 Better management of spinal cord injury, cerebral palsy and child disability, stroke, backache and other degenerative and inflammatory joint diseases.
- 4 Regular use of ICF framework.
- 5 Increased demand for their services.
- 6 Routine use of simple measures.
- 7 More patient satisfaction (anecdotal).
- 8 Initiation of a journal club.
- 9 More confidence and better communication with colleagues.
- 10 Higher profile in university and teaching hospital.

ICF: International Classification of Functioning, Disability and Health.

APPENDIX III. Physical changes in rehabilitation centres

- 1 Improved access (ramps, rails, toilets).
- 2 Library.
- 3 Multidisciplinary meeting room.

APPENDIX IV. Changes at national and international levels

National

- 1 Higher profile at ministerial level (already high).
- 2 National Guidance on the management of children with developmental disabilities.
- 3 Better appreciation of the contribution of Physical and Rehabilitation Medicine to patients, health services and to medical education.
- 4 Formation of the Association of Physical and Rehabilitation Medicine (APRM) of Madagascar, which is beginning to produce guidelines and training relevant to the country.

International

- 1 Poster presentation by Malagasy doctor at the European Congress of PRM, Marseille, France, 2014.
- 2 Journal article in preparation by Malagasy doctor.
- 3 Invited plenary lecture by M.A Chamberlain at World Congress in Neuro-Rehabilitation on teaching rehabilitation in a low resource country, Istanbul, Turkey, 2014.
- 4 Resulting recognition of the APRM of Madagascar and invitation to join the ISPRM-accepted.
- 5 Invited lecture by MAC at European Congress of PRM, Marseille 2014.
- 6 Invited plenary lecture at 1st Summit meeting on Rehabilitation in Developing Countries, Suzhou, China, 2014.

PRM: Physical and Rehabilitation Medicine; ISPRM: International Society of Physical and Rehabilitation Medicine; APRM: Association of Physical and Rehabilitation Medicine of Madagascar.