

# International Rehabilitation Education: A Comparative Analysis & Panel Discussion

**M.A. Young<sup>1</sup> and P. Disler<sup>2</sup>**

*<sup>1</sup>Chair, Department of PM&R, The Maryland Rehabilitation Center/ Workforce & Technology Center, State of Maryland Division of Rehabilitation, Dept of Education, U.S.A.*

*Professor of Rehabilitation Medicine, Director, Rehabilitation Programme & Victorian Rehabilitation Research Institute, Royal Melbourne Hospital & University of Melbourne, Australia*

On behalf of (in alphabetical order):

*Gulseren Akyuz, MD (Turkey) Professor of Rehabilitation Medicine, Marmara University Hospital, Dept of PM&R; Hugo Nunez Bernadet, MD (Uruguay) President of the Uruguayan PM&R Society And Cono Sur Organization, Dept of PM&R, Republic University; Catherine Dziri, MD (Tunisia) Professor of P&RM, University of Tunisia, Tunisian Public Health Ministry; Abdulla Eyadah, MD (Kuwait) Head, Dept of PM&R, Ministry of Health; Marta Imamura, MD, PhD (Brazil) University of Sao Paulo; Shin-Ichi Izumi, MD, PhD (Japan) Professor and Chairman, Tohoku University Graduate School of Medicine; Zaliha Omar, MD (Malaysia) Associate Professor, University of Malaya, Kuala Lumpur; Bryan J. O'Young (USA) Clinical Associate Professor, New York University, The Rusk Institute, Dept of Rehabilitation Medicine; Henk Stam MD, Ph.D (Holland) Professor & Head of Department, Erasmus University Medical Center Rotterdam; Jan Vacek (Czech Republic) Department Of Rehabilitation Medicine, Postgraduate Medical School, Prague*

## Summary

This chapter reviews international experience in postgraduate rehabilitation physician training and is based on two comprehensive studies. The first, formed the basis of an assembly, convened in Prague, Czech Republic in May 2003 as part of the 2<sup>nd</sup> World Congress of the ISPRM, aimed at promoting global co-operation and information exchange in P&RM<sup>1</sup> edu-

---

<sup>1</sup>P&RM. By international convention, the specialty known as Physical Medicine & Rehabilitation (PM&R) in the USA is referred to as Physical & Rehabilitation Medicine (P&RM), internationally.

cation. The content reflected the input of P&RM teaching physicians from five Continents (Africa, Australia, Asia, Europe and the Americas), including both developing and developed countries, as well as plenary delegates from over fifty countries. The agenda included nation-specific presentations on P&RM educational systems, reviews of teaching strategies and didactic “best practices” as well as a display of learning resources. A select data analysis is presented. The second source of information was an international symposium on P&RM training held in Washington in 1999 under the auspices of the American Board of PM&R (Brandstater 2000, De Lisa 2000, Disler 2000, Ring 2000, Chino 2000, Ward 2000). Sharing of rehabilitation knowledge among nations will serve to solidify physiatry’s role in fostering international benevolence.

## Introduction

Helen Keller, a famous blind educator and celebrated icon in the disability and rehabilitation community once proclaimed “Alone we can do so little; together we can do so much!” For educators and academics in Physical & Rehabilitation Medicine globally, this credo has special meaning since collaboration and teamwork is often the key to successful teaching. As populations grow older and survive life-threatening disease, the importance of improving quality of life through dissemination of rehabilitation knowledge continues to be an international priority.

Although specific training of doctors in rehabilitation has a long history in some countries (such as the USA), many countries have rudimentary, or no, specific postgraduate training programs. The aim of rehabilitation is to help people with “*impairments*” achieve the “*activities*” and “*participation*” that they desire. This dictum comes from the new World Health Organisation “ICF” taxonomy (WHO 2001), which stresses that the outcome of rehabilitation this may be influenced far more strongly by the physical, social and cultural “*environment*”, and “*personal factors*” (eg idiosyncratic response, previous experience and education), than by the nature or extent of the impairment. As these may be unique to the country in which rehabilitation is practiced, and to the disparate groups of people resident there, rehabilitation may vary more internationally than any other part of medical practice; similarly, the training of rehabilitation doctors (and other rehabilitation professionals) must reflect the society in which they will practice.

Based on the concept that learning from “each other” can be a potent and effective vehicle for promoting knowledge and global goodwill, an interactive collaborative session composed of members of the international rehabilitation educational community met in Prague in May of 2003. The dialogue was conducted in conjunction with the 2<sup>nd</sup> World Congress of the International Society of Physical and Rehabilitation Medicine.

At the designation of the ISPRM scientific committee, an appor-

tioned sample of rehabilitation physicians from five continents (Africa, America, Australia, Asia and Europe) were invited to serve on the panel. To further the goal of international co-operation and education “across the oceans”, representatives of “developing” and “developed” countries agreed to participate. Plenary delegates from over fifty additional countries were encouraged to contribute to the dialogue, and details of the meeting were posted on the ISPRM Congress web page.

The purpose of the convocation was to serve as a candid forum for exchange of information, views and insights about educational programs, rehabilitation resources and teaching strategies in P&RM. Each panelist was invited to present a five-minute presentation, profiling the rehabilitation medicine educational system in her/his country with an emphasis on learning resources and teaching strategies. Additional information elicited included: whether each participating country had a written curriculum in place (either at the national, local or program level), whether trainees are provided with web access and or an e-mail account, as part of their job, whether or not trainees employ web based access to rehabilitation learning resources (eg. Journals, Textbooks, or database access (eg. Cochrane Library), whether trainees must conduct a research project as part of their training requirements, whether programs would benefit from visiting lecturers (regional and international) in order to augment the learning experience., Each nation provided an overview of helpful learning resources (text-books, review books, handbooks, internet web sites and other learning tools) supportive of resident training. Common teaching tools, methods and strategies were also highlighted. In order to preserve the posterity, of the seminar’s historic academic vision, a rehabilitation resource and learning center composed of contributed books, educational materials and computer resources from participating member nations was showcased at the conclusion of the session. The exhibit will be housed in an accessible international destination and will be on “rotational display” at future international rehabilitation meetings.

## **Materials & Methods**

In order to establish an agenda for the meeting, prior to the conference, each participating panelist was sent a questionnaire (designed by the moderators, MY & PD).

### *Objectives of the questionnaire*

1. To provide information relating to “Educational Best Practices” endemic to a particular country including prevalence of common teaching methods in rehabilitation medicine (bedside teaching, lectures, journal club discussion, product demonstrations, workshops, internet web learning tools)
2. To review the key components of the core curriculum and to elabo-

rate on specific learning materials and resources used for each didactic area.

3. To identify key books and learning materials utilized by member nations to further an understanding of P&RM.
4. To encourage international panel participants to “showcase” particular books, pamphlets and other educational tools which are widely used in their respective countries.
5. To elaborate on Internet and World Wide Web educational tools helpful in promoting international P&RM education.

### *Goals of the panel presentation by member nations*

1. To ascertain whether each participating country had a written curriculum in place (either at the national, local or program level).
2. To determine whether trainees are provided with web access and/or an e-mail account, as part of their job.
3. To examine the prevalence of trainee use of web based access to rehabilitation learning resources (eg. Journals, Textbooks, Data-base access)
4. To explore whether trainees in a particular country must conduct a research project as part of their training requirements.
5. To establish whether programs would benefit from visiting lecturers (regional and international) in order to augment the trainee learning experience in particular countries.

## **Results**

Since not all of the data was available at the time of submission of this paper, an interval analysis of data is described below. Several generalizations are made and select highlights are provided. The authors plan to publish a more comprehensive analysis of this data set acquired in the near future.

## **Select Data Analysis Highlights**

### *General Results*

Questionnaires were e-mailed to ten countries and ten responded.

*Residency Program Demographics:* All panelists responding to the survey reported at least one residency-training program in their country of residence (Brazil, Turkey, Japan, Tunisia, Holland, Malaysia, USA, Australia, Uruguay). One country reported the existence of a program in the evolutionary stages (Kuwait). The number of programs in a given country varied widely from 82 (USA) to 1 (Tunisia, Malaysia). In gen-

eral, residents in a specific program rotated through a variable number of hospitals, clinics and institutions. (Range=2-8). The number of trainees per program differed widely from program to program (range 2-32) The gender composition of programs (male vs. female) differed widely according to country, the percentage of female trainees varying from 100% in Turkey, to 25% in Japan. In most countries women predominate in this specialty. The number of physicians with training in Rehabilitation who serve as teachers in the PRM programmes ranged widely according to country. The distribution of Physical or Rehabilitation Medicine as part of the curriculum, differed according to the country, as did key areas of emphasis.

### **P&RM Books & Learning Resources Cited**

#### *American Books: (not in ranked order)*

DeLisa; Braddom; Grabois; Krusen; PM&R Secrets

#### *French Books:*

Encyclopee Medico-Chirurgicale, Kinesitherapie et Reeducation (Paris, Elsevier); Trait de Medecine Physique et Readaptation, Sous la Direction de JP

#### *Turkish Books:*

Fiziksel Tip ve Rehabilitasyon (3000 pages with 170 contributors), Gunes, Kitabevi, Ankara, 2000

#### *Brazilian Books: (Portugese)*

Medicina de Reabilitacao: Lianza; PM&R SECRETS (Portugese edition)

#### *Journals Read:*

Archives of PM&R; American Journal of PMR; Clinical Rehabilitation; Acta Fisiatrica (Brazil); Revists medicina de Reabilitacao (Brazil); Romatoloji & Tibbi rehabilitayson Dergisi (Turkey)

#### *Specialty Books:*

*Neurology:* Brains Textbook of Neurology; *Pediatrics:* Nelsons Textbook of Pediatrics; *Orthopedics:* Mercers Textbook of Orthopedics, Hoppenfeld; *Physiotherapy:* Kendall; *Pain:* Travell & Simons; *Electrodiagnosis:* Kimura, Dimitru; *Stroke Rehabilitation:* Chino and Melvin (functional Reevaluation of Stroke Patients, Springer, Tokyo); *Spinal Cord Injury:* Bedbrook; *Musculoskeletal:* HollingsheadWH, Jenkins: functional Anatomy of Limbs

and Back; Conservative Management of the Spine: Young MA, Lavin R (1995: Hanley & Belfus); Spinal Rehabilitation: Young MA, Lavin R (1995: Hanley & Belfus)

## Summary of American Board of Physical Medicine & Rehabilitation Symposium, Washington, 1999

### *Number of physicians practising in rehabilitation medicine*

Respondents from 45 countries reported a total of 25,404 physicians practicing the specialty of PM&R; their regional distribution is shown below:

| Region                | Countries<br>(n) | Physicians<br>(n) |
|-----------------------|------------------|-------------------|
| Europe                | 17               | 8,986             |
| North America         | 2                | 6,500             |
| Asia/Pacific          | 11               | 5,084             |
| East Europe           | 6                | 2,588             |
| Middle East/Africa    | 6                | 1,049             |
| Central/South America | 3                | 1,197             |
| Totals                | 45               | 25,404            |

Within these regions, the individual countries with the biggest numbers of specialists were the USA with 6000, Japan 3000, Germany, Spain, France and Italy, each with 1000 to 2000, and Poland, Mexico, Turkey and Romania, each with 500-1000. Therefore, PM&R physicians are found in many countries, but the distribution is patchy, and some areas such as Africa and Central America have very few.

### *Components of rehabilitation medicine practice*

In the USA, PM&R practitioners spend about 40% of their clinical time dealing with inpatients (76% with patients with stroke, 59% with traumatic brain injury, and 57% with spinal cord injury) and about 40% dealing with non-inpatients. Nearly 80% of American physicians participating in pain management, and 51% in sports medicine. In addition 16% of clinical practice time is spent doing diagnostic electromyography. In the rest of the world, the average inpatient time load is similar (35%) but there is a wide range in different countries (5% to 85%). Electromyography is less commonly part of practice (only 7%), but the overall distribution of work is relatively similar.

In the USA, subspecialisation is common, eg 76% of PMR special-

ists restrict their practice to neurological rehabilitation; this is less usual elsewhere in the world.

### *Training In Rehabilitation*

Of the 45 countries surveyed, 43 offer clinical training in the specialty of PM&R, with 4,217 doctors in training. The number of years required for training after graduation from medical school varies from 3 to 6, some countries requiring completion of a period of training in internal medicine before clinical training in PM&R can begin, and many countries demanding time be spent in the specialities of rheumatology, orthopaedics and neurology. All countries who responded prescribe training in inpatient rehabilitation (usually 12 to 24 months), with rotations in stroke and spinal cord injury rehabilitation units; a considerable number have some formal requirement in geriatrics, and 29/43 require a paediatric rehabilitation experience. Musculoskeletal medicine is required in 40 of 43 countries, and 28 require experience with pain management. Twenty-three countries require EMG training.

In most countries specialty training is formalized, and some have established national training standards. Of the 45 countries surveyed, 41 provide for certification in the specialty of PM&R, either independently or in collaboration with other countries. The number of candidates taking annual national certification examinations varies from very few to >400, the median being 13; many countries therefore have small training programmes. Thirty countries give a written examination, mainly comprising multiple-choice questions, 31 have oral examinations, and 2 only have an oral examination. In 37 countries, formal training in PM&R that was completed in other countries is recognized and may satisfy prerequisites for admission to the certification examination.

### **Conclusions**

Across the oceans, Physical Medicine and Rehabilitation Medicine (termed PM&R in the USA or PRM, internationally) continues to be a very popular specialty among trainees. This interactive seminars described enabled the exchange of information among developed and developing nations in an unprecedented and historical format, and served to make the world "a smaller place" by bringing together rehabilitation specialists from developed and developing countries.

Although a relatively wide range of practice and training patterns appears to exist internationally, there are perhaps more similarities than differences. While it is reassuring that PM&R has gained a degree of international recognition, unfortunately no data are available that compare the types of patients who need the service, and to answer the important questions that arise: i.e. is PMR practice internationally based on the "western" model? Does this



meet the needs of patients in other countries as well as it does in the USA or Australia? Are the training programmes successful, and do they produce the kind of professionals that are needed? Good research is clearly needed in this field, and in allied fields such as nursing, physiotherapy, and occupational therapy. Convocations like the Prague Educational Summit will hopefully serve as a critical starting point for discussion of fundamental educational issues.

## References

- International survey of training and certification in physical medicine and rehabilitation Murray E. Brandstater, *Archives of Physical Medicine and Rehabilitation 81: 1234, 2000*
- Certifying and measuring competency in the United States. Joel A. DeLisa *Archives of Physical Medicine and Rehabilitation 81: 1236, 2000*
- Training and certifying in the United Kingdom and Europe. Anthony B. Ward *Archives of Physical Medicine and Rehabilitation 81: 1242, 2000*
- Certifying and measuring competency in Australia and New Zealand. Peter Disler *Archives of Physical Medicine and Rehabilitation 81: 1245-7, 2000*
- Certification and measuring competency in Japan, South Korea, and the Philippines. Naoichi Chino *Archives of Physical Medicine and Rehabilitation 81: 1248 2000*
- Certification and measuring competency in Israel. Haim Ring *Archives of Physical Medicine and Rehabilitation 81: 1250, 2000*
- Certification and measuring competency in physical medicine and rehabilitation in Canada. Hugh Anton *Archives of Physical Medicine and Rehabilitation 81: 1253, 2000*

## Appendix: Survey used for the Prague Meeting

EDUCATIONAL PROGRAMS, DIDACTIC RESOURCES AND TEACHING STRATEGIES IN PM&R SURVEY

Moderators: Mark A. Young MD, MBA, FACP & Peter Disler PhD MBBCh FAFRM

(Please complete by March 15, 2003)

Participant Background:

Name of Panelist:

Country:

Title:

Affiliation:

### Residency Program Demographics:

1. Does your country have a formal training programme in PM&R? (Specify the name of the program, affiliation and location (i.e. City))
2. If more then one, please specify the number of formal training programs? (Specify the names of the program, affiliation and location (i.e. cities))
3. For each program, please specify the number of locations (sites) that train-



ees rotate through?

4. How many trainees are currently enrolled in your program?
5. What percentage are men? What percentage women?
6. Who serves as director of the residency program? (Residency director, departmental chair, other)

### *Residency Leadership & Educational Faculty*

7. How many doctors who have completed training in rehabilitation are there at your institution(s)?
8. What percentage of doctors who have completed rehabilitation training are involved in teaching trainees?
9. How many fellows are in your department? (Note: A "Fellow" is a physician who has completed training in rehabilitation and who has gone on to pursue focused specialization training in an area of rehabilitation such as spinal cord injury, brain injury, pain, et al.)
10. Are medical students attending your University, exposed to rehabilitation?
11. If so, how?
12. Besides rehabilitation, which medical specialties contribute to the teaching program? (Rheumatology, Geriatrics, Orthopedics.....)

### **Residency Selection:**

How are residents selected?

- Match Program (match refers to a computerized system of placing residents)
- Personal recommendation
- Search Committee

### **Rehabilitation Curriculum Content:**

- What percentage of the curriculum and teaching is dedicated to "Physical Medicine"? (i.e., the diagnosis and treatment of musculoskeletal disorders with the use of medications, physical modalities, procedures and exercise<sup>1</sup>)
- What percentage of the curriculum is dedicated to Rehabilitation Medicine?
- (i.e. the process of making the person with a disability "maximally able" through the application of rehabilitation principles and techniques)
- What are the key areas of emphasis in the Rehabilitation curriculum in your country? lease rate 1-10 where 1 is LEAST and 10 is MOST important.

### **Care Of People With Disabilities**

#### *Books & Resources Used*

- Rehabilitation of people with Blindness
- Rehabilitation of people with hearing impairment
- Environmental Adaptation

### **Rehabilitation Assessment**

- Neurological Evaluation
- Manual Muscle Testing & Range of Motion
- Electrodiagnosis

### **Rehabilitation Of Neurologic Illness:**

- Stroke
- Multiple Sclerosis

- Traumatic Brain Injury
- Spinal Cord Injury
- Motor Neuron Disease

**Rehabilitation of Cardiovascular Conditions:**

- Pulmonary Rehabilitation
  - Cardiac Rehabilitation
  - Peripheral Vascular Disease
  - Pediatric Rehabilitation
- 4) Which rehabilitation materials and books are most widely used to provide a GENERAL comprehensive overview of Rehabilitation?
  - 5) For each of the curriculum areas noted above in question 3, are there any specialty books or focused resources that trainees use? (Please use question 3 to list your answers)
  - 6) Are there any “local educational resources” native to your country like books or monographs that have proven helpful in promoting mastery of the learning matter?
  - 7) Would you be willing to share resources (books, pamphlets, learning material from your country) that can be used for the establishment of an International Rehabilitation Learning Resource Center? (participants are highly