

International Context of Education, Training and Certification of Medical Physicists in Europe, North America and Australasia

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Conflicts of Interest



ACPSEM

Australasian College of Physical Scientists & Engineers in Medicine

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- I have received funding from the Australasian College of Physical Scientists and Engineers in Medicine (ACPSEM) to attend WC2012
 - The ACPSEM is administering a project funded by the Australian Commonwealth Department of Health and Ageing to improve mutual recognition of medical physicists trained internationally into the Australian market
 - Radiation Oncology – Strengthening Australian Medical Physics (RO-STAMP)

Survey of Programs

- EFOMP Survey conducted in 2008
 - Survey of European nations
 - Education and training programs
 - Accreditation and licensure schemes
 - Registration and continuing professional development
- In 2011 extended to include
 - Canada and USA – North America | 2 nations
 - Australia and New Zealand – Australasia | 2 nations
 - Update of European data – Europe | 25 nations



Coverage



Pulling it together

- These parts give the elements of the various

Medical Physics
Professional Recognition Schemes

Internationalization

- International Medical Physics Certification Board (IMPCB)
 - www.impcb.org
 - Established May 2010
 - Associação Brasileira de Fisica Medica
 - American College of Medical Physics
 - Australasian College of Physical Scientists and Engineers in Medicine
 - Chinese Society of Medical Physics
 - Chinese Society of Medical Physics – Taipei
 - Federación Mexicana de Organizaciones de Física Médica
 - Hong Kong Association of Medical Physics
 - Iraqi Medical Physics Society
 - Korean society of Medical Physics
 - Lebanese Association Of Medical Physics
 - Nepalese Association of Medical Physicists
 - 2011
 - Japanese Society of Medical Physics became an Observing Member

Issues

- Two issues to be considered
 - Consistency of programs around the world
 - Role of the IMPCB

Aim

Put the earlier work into an international context in reference to the IMPCB

Education and Training

- Majority of case need MSc in Medical Physics
 - Some nations allow BSc
- Hospital training essential in all but 4 nations ()
- Duration of programs (education + training)
 - Minimum of 2.5 years
 - Maximum of 9 years
 - A USA program is 3 to 6 years depending on scheme
 - The impact of the recent change of requiring ABR certification to practice was not analyzed as part of this paper
- Consistent with IMPCB recommended certification process

Terminology

- **Qualified Medical Physicist (QMP)**
 - Competent to act independently
 - Has minimum qualifications to be registered
 - Requires university qualification (usually MSc)
 - Requires 2 – 4 years education and practical training
 - Experience to be gained under supervision of QMP
- **Specialized Medical Physicist (SMP)**
 - Further specialized experience
 - QMP plus at least 2 years advanced clinical experience and specialist training
 - Also known as Medical Physics Expert (MPE)

Accreditation Systems

- Certification
 - Certification by certification body in each nation may be required either by regulation or employer expectation
 - Differences between level of QMP and SMP
 - 100% (2/2) North America nations certify QMP graduates
 - 24% (6/25) European nations certify QMP graduates
 - 76% (19/25) European nations certify SMP graduates
 - 100% (2/2) Australasia nations certify SMP graduates

The variety of certification levels between nations needs to be recognized

Licensure Regimes

- Variety of legal requirements
 - 56% (14/25) European nations require licensing
 - In Australia and USA the licensing requirements are determined at the state level with no national requirements
 - In New Zealand no licensing is required however certification is expected by the employers

Registration

- Registration is available in most nations
 - 68% (17/25) of European nations have a register
 - 100% of USA, Canada, Australia and New Zealand
- Requirement for registration
 - Voluntary in North America and Australasia
 - Voluntary for 36% (9/25) of European nations
- Renewal / Maintenance
 - Renewal systems are based on CPD

Continuing Professional Development

- Purpose
 - Used to maintain currency of competency / knowledge
 - Often part of renewal / maintenance mechanism for registration
- Internationalization
 - Not yet part of IMPCB policies

So far

- Elements of Medical Physics Professional Recognition Schemes
 - Education programs
 - Training programs
 - Accreditation and certification schemes
 - Licensing requirements
 - Registration regimes
 - Continuing professional development

Some variety but heading in common direction

What next?

- Emerging evidence of common systems
 - International framework for translation of elements between nations

Why?

Who?

How?

Why do it?

- National benefit
 - Attract and recruit trained medical physicists
 - Ensure standard quality in implementation of medical and surgical procedures using medical physics technology – **safety and quality for patients and reduction of costs**
 - Sharing of expertise to enable local education and training of common standard – **rapid development of working systems**
 - Capability to strategically plan workforce requirements and learn from the experience of those nations who have developed workforce models – **differences in workforce deployment must be recognized**
 - Recognition for contributing to better medical care for the world – **benefit our patients**



ACT
Government
Health

Come to Australia



Australia Needs Medical Physicists

- Australia has ~250 qualified medical physicists
- Australia needs ~750 qualified medical physicists by 2022
 - ~400 additional ROMPs
 - ~100 additional DIMPs (at least)
- Shortages are likely to be greater in other nations, but unrecognized by governments



Who does this?

- Nationally
 - National and /or state (USA and Australia) regulators
 - The national medical physics association
 - Each clinical medical physics department
 - Each university medical physics course
 - Each Medical Physicist
- Internationally
 - International medical physics bodies
 - IMPCB – **what role can it play?**

How can this be done?

- International framework
 - We want to translate elements from one nation to another nation (or state for USA and Australia)
 - Establish elemental matrices outlining translation requirements
 - Need to adopt common terminology and / or have an agreed dictionary
 - QMP – SMP – MPE – CROMP – CDIMP
 - MSc course accreditation – clinical training department accreditation – clinical training network accreditation

Example

- Certification translation matrix

		Moving To	
		Australia	USA
Moving From	Australia		With ACPSEM certification require 3 years supervised training prior to sitting ABR exam
	USA	Apply to ACPSEM certification panel for case-by-case assessment	

Retaining National Independence

- A translation matrix retains national independence
- As bilateral recognition arrangements are made, the translation matrix can be updated
- Gaps can be identified
- Potential flow-on effects of bilateral agreements can be identified

Expand Study and Impact



Is the IMPCB the way to go?



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Australia
Cyprus
Greece
New Zealand

Final Point

- The “why”
 - This is the most important point to address
 - Why would an international certification framework which includes a mutual recognition mechanism be important to:
 - You
 - Your national medical physics society
 - Your national / state regulator
 - Your public
 - Your patients (and the patients of the world)