Physiotherapy education and practice in Australia

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Australia has more than 100 years of physiotherapy university education. In 2008, baccalaureate and graduate entry programs are available in 14 universities. The universities set general standards of education. Additionally physiotherapy programs must meet the Australian Physiotherapy Council requirements before programs are accredited and their graduates are eligible for registration to practice. Academic and clinical physiotherapists have contributed to the development of these national standards and work collaboratively in the delivery of educational programs. Clinical education is an integral component of all degrees. Physiotherapy graduates are broadly representative of Australia’s multicultural community although with a higher percentage of women. There are approximately 1,100 graduates annually joining a workforce of about 16,000 physiotherapists. Australian physiotherapists have enjoyed autonomous primary care practice for more than 30 years. A wide range of specialist areas is open to them, supported by extensive continuing education and formal university programs leading to postgraduate doctoral and masters degrees in clinical practice and research.


Introduction

Australia is the largest island and one of the most ancient geological lands on earth. Despite earlier landings on Terra Australis made by French and Dutch sailors, it was relatively unknown to the northern hemisphere until the 18th century. In 1770 Captain James Cook claimed the island for Britain and settlement began in 1788 [1]. Although not recognised as owners of the land, the indigenous aboriginal population was well adapted to an environment that varied from stony harsh deserts to lush tropics and cool temperate zones. England first
used Australia as a penal colony and it was not until the discovery of rich gold deposits in the mid 19th century that the population rapidly increased with the arrival of many immigrants, initially drawn by the prospect of a fortune to be made. Since then Australia has benefited from ongoing waves of migration from many parts of the world.

The Beginnings of Physiotherapy Education

After the 1850s’ gold rushes reports of health practitioners using physical modalities, massage and exercise appeared. Some early practitioners trained others. Physiotherapy university education began in Australia at the University of Melbourne, Victoria in the late 19th century with studies in anatomy, including dissection and clinical studies at the Melbourne Hospital. This first Australian physiotherapy program was formalised in 1906 following the founding of the Australian Massage Association in 1905. The Association, the forerunner of the Australian Physiotherapy Association, established systems of registration, education and examination [2]. By 1907 there was a physiotherapy program at the University of Sydney, New South Wales and in 1908 at the University of Adelaide in South Australia. These programs were all affiliated with university medical schools and their teaching hospitals [3].

Registration through Government legislation to protect the community and maintain professional standards was achieved in Victoria in 1922. Additional educational programs began at the University of Queensland in 1938 and in Western Australia in 1951. By the 1970s all programs were four year baccalaureate degrees. Since 1994, twice yearly meetings of Heads of Schools of Australian and New Zealand Physiotherapy programs have encouraged the exchange of information, educational strategies and collaborative research. In 1997 a national accreditation process was introduced to ensure high quality outcomes in physiotherapy education. A National Educators Group within the Australian Physiotherapy Association also promotes excellence in physiotherapy education [4].

Since 1994 the number of entry-level physiotherapy programs in Australia has increased from six programs to 19 in 2008 with a mix of baccalaureate and graduate entry programs. High workforce needs for physiotherapists and the excellent academic calibre of the students, makes the programs very attractive to universities [5].

Physiotherapy Education in 2008

All physiotherapy education in Australia is within universities. A full professor in physiotherapy generally leads the program with research providing a strong foundation for education. Tenured academic faculty members hold a PhD or postgraduate qualifications in a clinical specialist area. Clinical education is an integral part of the academic requirements and senior clinical educators also hold postgraduate qualifications. Physiotherapy entry-level students are exposed to PhD and postgraduate professional doctoral candidates and coursework students in physiotherapy as part of their educational experience both at university campuses and within clinics. In 2006 about 1,100 graduates completed their physiotherapy degrees and more than 1,350 commenced in 2007 [5].

Funding physiotherapy education

University education in Australia is financed through public (Federal Government) and personal funds within the public universities. Full fee paying places are available for graduate entry programs students. Many international students come to study physiotherapy at both undergraduate and postgraduate level in Australia. They pay fees for their education.

Ensuring educational quality

High standards of education in physiotherapy are ensured through the Federal Government imposing regulatory requirements on all universities and the Australian Universities Quality Agency overseeing educational quality through five yearly audits [6]. Figure 1 shows the agencies which govern the institutions, the educational processes and the standards used in physiotherapy education and practice.

Within the national quality framework, there are additional accreditation standards for physiotherapy education. The Australian Qualifications Framework [7] is the national guide for educational qualifications. Within this framework, all university education programs are required to meet the prescribed standards of their own academic boards [8].

Accreditation of Physiotherapy Programs

All physiotherapy entry-level educational programs must fulfill the requirements of the Australian Physiotherapy Council [9] to achieve accreditation and thus for graduates to be registered to practice. The Council comprises representatives of the State and Territory registration boards, the Australian Physiotherapy Association and the Heads of Schools of Physiotherapy. Accreditation ensures that graduates are appropriately prepared through the development of knowledge, clinical reasoning and practice skills and professional attitudes to practise safely, effectively and efficiently as physiotherapists.
Accreditation is a periodic process involving the submission of detailed documentation to the Australian Physiotherapy Council. Six members of the Accreditation Committee of the Council evaluate the documentation and consider the university’s preparedness for a site visit. Four experienced physiotherapists including a professorial and one other member of the particular university’s Accreditation Committee undertake the site visit. Reports are prepared and recommendations made to the board of the Australian Physiotherapy Council. New physiotherapy programs are required to progress through preliminary stages before being eligible to apply for full accreditation [10]. Full accreditation is not considered until the outcome of graduate performance from the program is formally assessed through the use of questionnaires to the new graduates and their employers. The questionnaires are based on the Australian Standards for Physiotherapy [11]. Research indicates that graduates achieve these outcomes [12].

**Australian Standards for Physiotherapy**

The Council’s Standards for Accreditation of Physiotherapy Educational Programs [10] and the Australian Standards for Physiotherapy [11] guide accreditation. The principles of equity and justice and the use of objective criteria in assessment are required. Diversity and innovation in achieving educational goals are encouraged. The Standards for Accreditation of Physiotherapy Educational Programs consider all elements of the program including staffing, resources and infrastructure, and support for students as well as the performance of graduates. The Australian Standards for Physiotherapy focus on the essential theoretical knowledge, clinical
skills and professional attributes to be achieved by entry-level graduates. Graduates of accredited programs are eligible for registration and primary contact professional practice. There is no national examination. The Australian Physiotherapy Council is also responsible for the assessment of overseas-qualified physiotherapists and ensuring that they meet the same standards of practice required in Australia for registration.

Professional curriculum delivery

Educational prerequisites for physiotherapy

There is a strong demand for admission to physiotherapy programs in Australia and entrants are within the top academic five percent of school leavers. The minimum requirement for students leaving secondary school who wish to apply to universities for a four-year baccalaureate degree is completion of the final secondary school examinations. Such examinations vary slightly between Australian States, but there are mechanisms available for universities to determine equivalence between applicants. All applicants require high levels of competence in English and generally Schools of Physiotherapy demand excellent results in the sciences, mathematics and in information and communications technology [13, 14]. Similar standards are required of entrants to graduate programs where applicants are usually science or exercise science graduates who must have prerequisites in anatomy, physiology, behavioural science and research.

Gender and culture representation in physiotherapy

64% of graduates from undergraduate programs in 2003 were female, along with two-thirds of the intake into physiotherapy in 2004. In contrast, over 50% of the intake into graduate entry physiotherapy programs in 2004 was male [5]. School leavers and mature aged entrants, students from rural locations and students born outside Australia, are well represented amongst students, but indigenous Australian students and low socio-economic status students are under represented in proportion to their numbers in the Australian population [5].

Teaching and Learning

Academic degrees for entry-level physiotherapists

When university physiotherapy education began in Australia in 1906 students completed a two-year diploma. This became a three-year diploma in the 1930s with degree programs introduced from the 1950s [3]. In 2008 new physiotherapists have either completed a four-year baccalaureate degree, offered at 13 universities, or a graduate entry masters or doctoral degree following a previous cognate degree. The graduate entry degrees are offered at six universities and require five to six years of university study. This is similar to the educational requirements for medical practitioners in Australia, which were previously through baccalaureate degrees, but now some universities offer graduate entry degrees. Other health professionals hold a variety of degrees. For example, all audiology programs are graduate entry masters degrees, but clinical psychologists complete a baccalaureate degree followed by a masters or clinical doctorate. Registered nurses complete baccalaureate degrees, as do dentists and pharmacists. The Bologna agreement in Europe and the educational changes in North America are influencing some Australian universities to offer graduate entry professional degrees [15].

Advisory bodies

Each program is expected to have an external advisory committee to provide advice in the development, delivery, review and evaluation of the particular program. Such committees normally comprise senior members of the clinical community involved in the education program, professionals from other disciplines, representatives of the professional association and registration boards, representatives of appropriate government authorities, graduates of the program and community members.

Academic and Clinical teaching faculty

Student learning is facilitated through a variety of educational paradigms overseen by physiotherapy, biomedical and behavioural science academic faculty and physiotherapy clinical faculty. Physiotherapists undertake most teaching. Academic physiotherapists hold postgraduate qualifications, usually a PhD in physiotherapy. An anatomist, physiologist or pathologist may teach biomedical sciences such as anatomy, physiology or pathology, with the applied components taught by physiotherapists. For example an anatomical scientist and a physiotherapist anatomist teach musculoskeletal anatomy with tutors drawn from physiotherapists, surgical trainees and anatomical scientists. Physiotherapists teach the applied components of kinesiology. Psychologists, sociologists and ethicists who may also be physiotherapists teach the behavioural sciences. Additional material is provided by academics in other disciplines such as surgery, medicine, obstetrics and gynaecology, but physiotherapists deliver the clinical practice components. Senior clinical educators hold postgraduate qualifications in their area of practice specialty. Whilst some lectures are given, small tutorial or practical classes are more common with schools employing problem or case based learning rather than didactic tea-
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ching approaches [12]. Students are expected to take significant responsibility for their own learning and be prepared to challenge ideas and participate in robust discussions.

Clinical education

The clinical education component is integral to Australian physiotherapy education [10]. As part of accreditation, Schools of Physiotherapy must provide clinicians with the knowledge and skills to deliver, facilitate and assess this part of their education programs. A number of methods are used to prepare clinicians. These include clinical manuals, seminars and in-service sessions for staff within the clinical facility. Experienced university educators deliver topics such as ‘how to facilitate adult learning’, ‘assessment’, and ‘providing feedback’. Frequent interaction is encouraged between academic and clinical staff. There are a variety of formal relationships with universities, from university academics undertaking clinical educator roles (sometimes within a specific university operated physiotherapy clinic [16]) joint appointments between clinical sites and universities, and Clinical Schools where nearly all clinicians have an educational responsibility. As achievement of accreditation requires assurance from the university of sufficient clinical placements for all its student requirements, cohesive relationships between academics and clinicians are fostered. Less formal relationships are common when students undertake elective placements. These latter experiences are not core components of the educational program but enable students to pursue particular interests or gain breadth or depth in a non-core area of practice; it is common for these to be outside physiotherapy clinical practice or overseas.

Clinical Schools

Many physiotherapy students are incorporated into a Clinical School model of integrated academic and clinical education such as was first begun at the University of Melbourne in 1991. Here, as well as being a member of the School of Physiotherapy at the university, each first year student becomes a member of a Clinical School. The student begins clinical practice in the Clinical School that year and spends increasing periods of time in the Clinical School as the program progresses from first to fourth year. The Clinical School is based within a large public health service with physiotherapy Clinical Dean responsible for students and the clinical education program delivered within the clinics associated with that Clinical School [17]. Education facilities such as seminar and tutorial rooms, libraries and computer access are available for all students in the Clinical School. The Clinical Deans meet with their academic colleagues regularly to discuss curriculum delivery, assessment, review and management and strategic developments and issues in physiotherapy. Physiotherapy specialist staff (for example cardiorespiratory) from the Clinical Schools jointly with cardiorespiratory academics determine desired graduate outcomes in this specific discipline; decide academic and clinical curriculum content; develop educational materials; determine assessment criteria and establish reliability of assessment across clinical sites. There is a great deal of interaction between clinicians and academics. Physiotherapy professors in the Clinical Schools are increasing since the first appointment in Australia in 2000 [18]. These university appointees are located within the Health Services associated with the Clinical Schools. Clinical research positions are increasingly common practice too.

Regulation of physiotherapists

Registration

All physiotherapists must be registered with their State or Territory Registration Board to practice. Registration is designed to ensure good practice in physiotherapy and protect the members of the community from unsafe or unprofessional practice [19]. Graduates from accredited programs in Australian universities are eligible for full registration on graduation. Registration is renewed annually and registration boards may require ‘recent practice’ to enable continuing practice. There are no further legislated registration requirements for specialist physiotherapy practitioners. To further ensure safe practice and protection of the community, ‘student registration’ has been introduced; although not yet in all States. The Federal Government is currently moving to national registration [20].

Physiotherapy practice

Physiotherapists in Australia have had autonomous practice since 1976: the first country to do so. The Australian Physiotherapy Association proposed this move for the profession around the world at the World Confederation of Physical Therapy (WCPT) in 1978 [2]. Although controversial the WCPT supported Australia’s proposal that primary contact practice be interpreted in each country [2]. In Australia, physiotherapy does not have to be prescribed by another practitioner, although cross referral is common, particularly between physiotherapist and medical practitioner. There are approximately 16,000 registered physiotherapists in Australia with an average age of 39 years and 76% are females, although the percentage of males is increasing. About half work as private practitioners and most others in publicly funded hospitals and community centers [22]. Australia has a dual-funded health system with public facilities available to all through Medicare [23]. However many people choose to also pay
for private health insurance. Physiotherapy can be obtained at no cost in publicly funded facilities or through payment in a private physiotherapy practice. In private practice clients pay directly or through their private health insurance scheme or the physiotherapist is reimbursed through a scheme such as worker’s compensation. Some patients with chronic conditions may receive a limited number of treatments in a private practice through the public Medicare scheme, which also funds medical practitioners [23]. As primary contact practitioners physiotherapists can directly request and receive the results from testing such as radiological imaging, but not as extensively as medical practitioners. There are currently financial disincentives to patients for physiotherapists to provide a direct referral to a specialist medical practitioner.

**Transition from education to professional practice**

For many years it was common for new graduates to begin professional practice in a public hospital. Now with changing health systems; decreased length of stay, greater community care, increased use of technology combined with increased numbers of graduates, there are relatively fewer positions in public hospitals and more new graduates are in public and private community practices. Although prepared for primary contact health practice, graduates are encouraged to begin practice in a well-mentored working environment.

**Physiotherapy Specialisation**

The decision to become autonomous primary contact health professionals raised the status and responsibilities of physiotherapists and fostered the development of practitioners with enhanced knowledge and skills in specific areas of practice. In Australia all new graduates are required to have a broad physiotherapy education, which prepares them to work as a beginning practitioner in all areas of physiotherapy. At present there are no additional registration requirements for physiotherapists who focus their practice in specific areas or who undertake the formal process of specialisation through the Australian College of Physiotherapy. Nevertheless, most physiotherapists practice within a subdiscipline area such as musculoskeletal, cardiorespiratory, neurological or paediatric physiotherapy. There are 12 different specialist areas acknowledged in workforce data collection [19]. Physiotherapists have many opportunities to undertake further professional development in these special areas. Continuing education is readily available through the Australian Physiotherapy Association [24], through the universities and through private providers. Certification of specialist practitioners has particular education requirements and is discussed further below.

**Development of specialisation**

From the beginning of physiotherapy in Australia there were physiotherapists who undertook practice in specific areas and developed high levels of skills and knowledge. They developed this additional knowledge through learning from peers, professional continuing education programs and experience. Highly developed areas such as muscle reeducation and manipulation influenced physiotherapy practice worldwide. The first postgraduate course in Australia was organised in 1932 [2]. This was as a result of the increasingly common poliomyelitis outbreaks. Physiotherapists were key to the management of poliomyelitis from the most acute phase in hospital to ongoing rehabilitation. Physiotherapists had high levels of autonomy in the management of poliomyelitis sufferers. Those physiotherapists treating families in their own homes usually filled the roles of physiotherapist, orthotist, occupational therapist, speech therapist, social worker, psychologist and family therapist. Visits from medical practitioners were few whilst the physiotherapist visited several times each week [25]. The knowledge and skills developed over decades increased physiotherapists’ confidence and their abilities as autonomous professionals and helped pave the way for primary contact practice. Specialist practice was significantly advanced in 1965 when Mr. Geoffrey Maitland, a South Australian physiotherapist, commenced a postgraduate diploma course in manipulative physiotherapy. Universities subsequently developed additional specialist programs. In 1971 the Australian College of Physiotherapy enabled formal recognition as a specialist [2].

**Specialist practice now**

Current specialist areas of practice available are in cardiorespiratory, musculoskeletal, neurological, occupational health, paediatric and sports physiotherapy. Women’s health and gerontology are in preparation. The university-based postgraduate specialist masters degrees which commenced in 1990 followed the postgraduate diplomas of the 1970s [3]. These masters’ qualifications provide the first stage of specialisation. The postgraduate clinical doctorate enables an academically rigorous pathway to specialisation. Before commencing the specialisation process candidates must complete two years of clinical practice following graduation, with at least one year in the area of specialist practice. Three full time years are then necessary to complete the clinical doctorate or undertake an individual clinical specialist path. All candidates must participate in research, education and professional development as well as clinical skill development with experienced specialist clinicians. Clinical practice examinations complete the process.
Recent developments

In publicly funded centers such as tertiary hospitals, physiotherapists undertake advanced roles in many areas. In the musculoskeletal area these are similar to those already in private practice. Physiotherapists make decisions in orthopaedic and neurosurgery clinics regarding the need for surgical consultation or physiotherapy management, and undertake musculoskeletal injury triage and management in emergency departments. An example is a physiotherapy-led low back pain triage service. Previously their general medical practitioners would refer patients to an orthopaedic surgeon; patients now see a physiotherapist first who makes the decisions regarding the patient’s management. The referring doctors are very satisfied with the service, which has reduced waiting times for appointments and improved the quality and promptness of feedback and overall management of the patients [26]. Falls assessment, managing paediatric orthopaedic and movement disorder clinics, non-invasive ventilation services and urology/continence management are growing areas of physiotherapy overall management. The Australian Physiotherapy Association promotes further professional opportunities for physiotherapists. This includes advocating legislative changes to extend the scope of physiotherapy practice to areas such as limited prescribing, injecting and surgical techniques like bronchoscopy [24]. Postgraduate clinical doctorate programs are already providing education required to advance extended roles with additional pharmacology and clinical therapeutics and radiology in their curricula [27].

Future physiotherapy practice

The World Health Report [28] indicates an estimated shortage of about 4.3 million health workers worldwide. Ageing populations, changing technology and increasing community expectations are putting pressure on health systems. Physiotherapists can contribute important professional knowledge and skills to improve the health of communities as the proportion of older people increases. Chronic diseases such as arthritis, cardiovascular disease, respiratory compromise, diabetes, obesity and dementia increase with age. Motor vehicle and workplace accidents are also growing [28]. Physiotherapists in Australia are active in health promotion and the maintenance of optimal physical function and mental health. These roles are expanding with population demographics changing and as a result of deteriorating physical environments and fragmenting of social structures. Emerging diseases such as SARS, the ongoing devastation of HIV/AIDS and the reemergence of killers such as tuberculosis are challenges for future physiotherapists. Many physiotherapists are in research, managerial and public health positions with physiotherapy degrees preparing graduates for a range of opportunities aside from clinical practice.

Opportunities for Physiotherapists in Australia

Australian Schools of Physiotherapy have significant numbers of international students and prepare all their graduates for work around the world [4]. Their well-recognised capacity to be excellent communicators, problem analysts and solvers prepare graduates well for the changes in global health [12]. Universities offer postgraduate education in research and specialist coursework and completion of an Australian degree facilitates entry for working in Australia. Nevertheless all overseas-qualified physiotherapists must complete assessment through the Australian Physiotherapy Council before being able to register to practice. Longstanding workforce shortages ensure that physiotherapists are welcomed, especially in rural and regional areas [29].

Conclusion

Physiotherapy education, registration and specialisation are well established in Australia where physiotherapists enjoy autonomous practice in a respected profession. Physiotherapy is a strong academic and clinical discipline with leading universities having world-renowned research programs, which drive teaching, and learning to ensure graduates are skilled in contemporary evidence based clinical practice.

REFERENCES

