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## **Gibson, B., and Brightwell. R. The Developments in Paramedical Science and the implications of National and International Accreditation and Registration in Alliance with Ambulance Authorities**

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### ABSTRACT

The School of Exercise, Biomedical and Health Sciences at Edith Cowan University established a new Bachelor of Science (Paramedical Science) degree in 2004. The program is a joint initiative between Edith Cowan University and St. John Ambulance and is the only Paramedical degree being taught within Western Australia. In preparing the graduates to work in the profession as qualified paramedics, it was essential to integrate the theoretical content taught by both the university and the ambulance corporation with significant practical experiences being delivered in the ambulance and hospital environments. The implications for this type of arrangement have been far reaching, as it involved the combining of the university resources with a corporate provider who had previously been involved in an education program in the VET system. From the beginning it was recognised that there were many issues that had to be addressed. These included:

- the ownership of the intellectual property,
- cost sharing arrangements between the university and the corporate partner,
- quality control of all aspects of the program,
- staffing implications for units taught outside the university,
- legal liability associated with all aspects of conducting the program,
- adherence to occupational safety and health standards,
- duty of care for both patients and the trainee paramedics,
- ownership of the program,
- the identity of the university degree as opposed to the VET qualification,
- conversion from the VET qualification,
- development of postgraduate and research programs,
- accreditation and registration

With the development of this program each of these issues has brought its own unique problems and forced similarly unique solutions. This has been an exciting challenge for all concerned. There was no template or guide to follow within the university system and this was the first time that the university has entered into an arrangement where a partner from the community has had such a significant input into a teaching program. The resulting agreement has provided a guide for others who may wish to establish similar partnerships in the future. Now that this degree is about to see its first graduates receive their parchments it is beneficial to reflect on the changes which have occurred both locally and nationally since the inception of the degree. It is clear that the effort that has gone into the careful development of this degree and its associated partnership has resulted in a quality program being delivered by the university in conjunction with its corporate partner.

## INTRODUCTION

The development of ambulance education over the last fifteen years has been impressive with the transition from an essentially skill based approach to a tertiary degree based approach across Australia. While this transition was welcomed by the majority of professionals working in the industry, there are still those who question the relevance and necessity of tertiary studies for paramedics (Battersby, 1999; Cooke, 1997; Johns, 1997).

Lord (2003) points out that similar shifts in education occurred in the nursing profession in the 90's, where the major determinant for the change was to transfer the educational cost away from the states to the federally funded institutions of higher education. Whilst this may have been a factor in the paramedical discipline, a definite need was identified to progress the professionalism of the discipline and further develop skills that were lacking in the existing vocational training program.

It was with this premise in mind that in the late 90's and early 2000's a number of tertiary programs were designed by universities across Australia. These programs were principally aimed at training graduates to take up positions as paramedics with the various ambulance organizations in the Australian States. These programs were however designed on a course by course basis, with very little consultation between the universities across the state boundaries.

The question that has been underpinning all of these developments is that of, "what identifies graduates who are both qualified and ready to take their place in the professional arena?"

As previously reported (Gibson, 2005) there is a strongly held view in Australia, and overseas, that universities, while producing high quality research and teaching, are not converting ideas into work ready graduates (Australian Vice Chancellors' Committee, AVCC, 2004, Lambert Review, 2003).

This paper looks at three aspects associated with the training, accreditation and registration of paramedics and paramedical science degree programs.

The first aspect is the responses of Australian Universities to the market need for work ready paramedics. The main organizations influencing what the market demands from universities are the Council of Ambulance Authorities (CAA) and the Australian College of Ambulance Professionals (ACAP). Across Australasia any university paramedical science program will be influenced by these organizations. A complete spectrum of relationships exist between the universities, with some universities establishing industry partnerships similar to Edith Cowan University, while others have remained independent of the market place. In a number of other cases the universities and other professional bodies interact to varying degrees.

The second aspect addressed in this paper is that of portability of awards. The terms accreditation and registration are the hall marks of university conducted courses and are closely aligned to the preparation of professional health care workers. In the case of paramedical science degrees this has been an ongoing issue. As yet, Australasian state, rural and metropolitan ambulance authorities have failed to put into place a method for national accreditation and registration. This paper will look at the influence of both the profession and the government at a national and international level and the processes of portability of qualifications.

The final aspect for consideration is how the whole area of health services provision is changing as a result of government intervention. This paper will explore the impact that these changes may bring about in terms of expansion within the university programs and their effect on paramedic employment opportunities.

## PROGRAMS IN AUSTRALIAN UNIVERSITIES IN PARAMEDICAL SCIENCE

At the present time there are eight universities across Australia offering degree programs designed to train paramedic graduates. Grantham (2004) indicated the significant variation that exists in the various programs and the need to try and establish a structure that will meet the varying requirements of industry and the employers.

A survey of the programs has revealed that there are significant differences in the approaches that are being taken in the preparation of paramedics and this poses a problem if the notion of accreditation is to be seriously considered. This has in turn raised a number of issues that the Universities should consider. These include:

- Specifying the type of degree that will be offered, eg Science, Health Science, Paramedical Science, Nursing and Paramedical – or alternatively associate degrees.
- The placement of the pre-hospital practicum, and how this is to be balanced with the theory component.
- Should the universities be producing graduates who are considered 'work ready'. Alternatively, should there be an expectation of a one year internship following graduation.
- What should the relationship be between the universities and the ambulance authorities.

A survey of the courses offered by the universities has identified common areas of content throughout the degrees. These areas include units in Health Communication, Cultural Issues, Mental Health Issues, Anatomy and Physiology, Pharmacology, Pathophysiology, Sociology, Research Methods, Pre Hospital Research Papers, Pre Hospital Ethics and Law, Theory of Paramedical Practice and Clinical Practicum. This commonality demonstrates that there is a recognisable set of pre-requisites for a working paramedic (Willis & McCarthy, 1996).

The following is a summary of the programs that are presently being offered in Australian Universities and illustrates the variation that exists in the structure and processes.

Edith Cowan University has a post employment degree leading to a Bachelor of Science (Paramedical Science). Graduands will have been working in the pre hospital environment for two years, yet will not qualify as work ready paramedics until a further intern year has been completed. The university has a legal and working relationship with the St John Ambulance West Australia, with whom the students are employed, from the second year of this degree program.

Queensland University of Technology offers a full time Bachelor of Health Science (Paramedic) as a pre employment course. Graduands will have experienced eighteen weeks of clinical practice in the pre hospital environment. They will graduate with the skills, knowledge and qualifications to pursue a career as an ambulance paramedic. The course includes supervised clinical practice with Queensland Ambulance Service and graduands may find employment with that service.

Charles Sturt University conducts the Bachelor of Clinical Practice (Paramedic) by full time study. This is another pre-employment course. For work experience, full-time students spend up to four hours each week practicing their clinical skills in a simulated paramedic environment. Clinical placements in appropriate healthcare settings are undertaken as students are placed with an ambulance service for six weeks each year in order to practice their clinical skills. The students may be eligible for employment with an ambulance service after two years full-time study and may then continue to study externally to receive their Bachelor degree. This course is being taught in conjunction with the Ambulance Service of NSW and the Tasmanian Ambulance Service.

Victoria University has a Bachelor of Health Science (Paramedic). This is also a pre-employment course. For work experience, students spend one hundred and eighty four hours each in a pre hospital clinical setting. The graduands may be eligible for employment with an Ambulance Service. This course is being taught in conjunction with the Rural Ambulance Service of Victoria. Monash University offers a Bachelor of Emergency Health (Paramedic). This is the oldest university based course in Australia and has recently changed to a pre employment mode to reflect

the changing nature of the health service. The course exposes students to four hundred and forty hours in a pre hospital clinical setting. Graduands are at a beginning practitioner level and may be eligible for employment with an ambulance service. Monash University has a working relationship with the Metropolitan Ambulance Service of Victoria, however their position is strengthened by a contract between the university and the Victorian Department of Human Services for ambulance officer education.

The University of Tasmania is the latest Australian University to start an undergraduate program and the only one to offer an associate degree in Paramedic Studies. After gaining employment students spend three years studying part-time, concurrent with full-time employment in the Tasmanian Ambulance service. During this time four hundred and sixty eight hours are clinically assessed. Graduands will have met the professional requirements for employment as a qualified ambulance paramedic. The university has a partnership with the Tasmanian Ambulance Service.

This summary illustrates the issues that are facing the universities. The concept of work readiness differs between ambulance authorities and industry employers and depends on the nature and level of paramedic education program. Examples include pre-employment model / conversion model / postgraduate model.

These degree programs need to provide paramedics with a broad range of knowledge and skills that enable them to make a positive contribution to patient care and community health. Particular emphasis needs to be placed on the development of interpersonal skills and the ability to build relationships with both local and regional stakeholders. It is also apparent that the role of the paramedic needs a strong undergraduate education that will provide them with the knowledge, skills, understanding and the correct professional attitudes to operate as independent practitioners. As members of inter-disciplinary and inter-agency teams they will be required to work to their specified level of competence, with patients of all ages either as individuals or as groups.

The Ambulance Services Association (ASA 2003) has adopted a set of competencies for paramedics that were developed by the Higher Education Ambulance Development Group of the Ambulance Services Association in the United Kingdom. These have in turn been adopted to the Australian setting and included in the Assessment and Accreditation Guidelines as agenda attributes for paramedic graduates of Australian University paramedic programs (Walker et al 2005).

These agreed attributes include:

- Knowledge and understanding
- Skills
- Attitudes affecting professional behavior

The following is a comprehensive summary of these three attributes as established by the Ambulance Services Association (2003).

Attributes relating to knowledge and understanding

Paramedics should have knowledge and understanding of:

- Individuals and groups in a broad range of settings including acute, primary and critical care settings who present with complex and challenging problems resulting from multi-pathology illness and injury;
- the age span of human development from neonate to old age;
- patient-client autonomy, embracing the concepts of inclusion, equal opportunities, individual rights and empowerment of patients;
- the role of the paramedic in the health and public safety system; the moral, ethical, legal, social, economic and political implications of providing paramedic practice;
- partnering in the delivery of emergency medical and health services;

- current trends in the evolution of community based emergency health services as a basis for leading innovation in ambulance-based health care and appropriately responding to the challenge of change; and
- the principles and practices of evidence-based practice, and their application to paramedic practice and service delivery.

### **Attributes relating to skills**

Paramedics should have developed the following skills to an appropriate level for their stage of training:

- recognise and assess appropriate symptom-syndrome patterns and care for patients;
- provide and/or assist with care during the transport of patients of all ages suffering from illness, injury or disability, whether physical or mental, acute or chronic including retrieval or escorted patients;
- apply professional skills, techniques and knowledge for safe, efficient and effective operation of medical equipment and procedures in a pre-hospital environment;
- ensure that care and treatment is maintained on arrival at hospital, until responsibility is handed over to the appropriate personnel;
- communicate and work effectively with other emergency services personnel and other members of the health care team;
- manage the associated social, cultural, religious, emotional and communication aspects of sick and injured persons, their relatives, carers and bystanders;
- practice as a paramedic within an appropriate ethical and professional construct whilst adhering to relevant legislation, regulations and industry policies;
- initiate and/or assist with rescue techniques as appropriate and initiate the management of multi-casualty incidents;
- develop the use of problem solving techniques in the planning and implementation of pre-hospital emergency care;
- use reflection and self-evaluation to evaluate and inform performance; and
- use effective presentation and communication skills to provide basic instruction to individuals and small groups.

### **Attributes relating to attitudes affecting professional behaviour**

- Graduates should acquire the following professional attitudes and behaviour, which are regarded as fundamental to paramedic practice:
- meet the needs of the community, the industry and the profession as a practicing paramedic and member of the health care team;
- appraise and adopt a critical and enquiry-based approach to the delivery of care;
- contribute to the professional paramedic knowledge base and research programs and practice within an evidence-based paradigm;
- promote the use of evidence/research in the paramedic profession in providing optimum patient care;
- commit to team and partnership working and to working with other professionals;
- appreciate the role and concepts of continuous improvement and development in ambulance services;
- recognise the implications of improving the quality of services delivered on the broader health care system; and
- demonstrate an appreciation of and commitment to self directed professional development and life-long learning.

### **PROBLEMS AND ISSUES WITH THE PRESENT EDUCATIONAL SYSTEM.**

There are a number of common problems that these programs share while attempting to achieve the required attributes. These include:

- the management of relationships between ambulance authorities and universities;

- clinical placements including resourcing, organisation, minimum hours, access, rural teams;
- cost shifting;
- managing specific ambulance requirements intern programs / work readiness;
- employment relationships;
- graduate selection tests, timing and equity principles;
- accepting local and international students.

Edith Cowan University in delivering the degree program in partnership with St John Ambulance Australia (SJAA) has established a legal agreement in order to ensure that all aspects are covered between the two organisations that are involved. In this particular arrangement the students are employed by SJAA on a full time basis during the time that they are completing the second and third year of their studies. SJAA are therefore responsible for the practicum training that is in the degree. This arrangement prevents the university from accepting other students and international students into the program because they would not be employees of SJAA and would therefore not be included in the practicum units. This therefore limits the number of students taken into the program to those who are accepted and employed by SJAA. This program however ensures that SJAA has work ready graduates who will still need an intern year before becoming fully qualified.

By comparison there are other pre-employment programs in other universities who consider graduates work ready without this intense pre-hospital clinical experience.

#### ACCREDITATION OF DEGREE PROGRAMS

The term accreditation and registration are hallmarks of professional health care workers. Up until now no procedures have been put in place to have this process formally recognised for paramedics. Grantham (2004) points out that the issue of accreditation has always been difficult to address as accreditation has been seen to be synonymous with control and standardization. This, however, need not be the case and at the Adelaide Symposium of Ambulance Authorities (2005) it was identified that accreditation does not necessarily mean standardization and that variation is of value to the ambulance industry.

While the accreditation process is still in the early stages in Australia, the following review of the accreditation of similar programs in other prominent countries illustrates the direction that needs to be taken.

In the United States of America during the mid-1970's the National Registry of Emergency Medical Technicians (NREMT) monitored the development of the first National Standard Emergency Medical Technician (EMT)-Paramedic curriculum. As the curriculum and subsequent interest in this advanced level of practice developed, the NREMT Board of Directors requested establishment of a national certification for EMT-Paramedics. Through a cooperative agreement with the University of Kansas Medical Centre, the NREMT was able to develop and pilot test the first Paramedic examination in Denver, Kansas City and Chicago. The creation of a National Standard Curriculum lead to a fully standardized and nationally valid testing instrument, which is required for registration.

In Canada, each of the ten provinces and three territories are generally responsible for their own regulated professional registration. EMT-Paramedics are regulated directly by the provincial and territorial governments, through their Emergency Health Services Registration Committee a self-governing body that is established through provincial and territorial legislation. This body has the power to decide on the exact process of registering their members, but are still subject to the scrutiny of the province or territory. Ultimately, each province and territory has the power to decide on what is required to work as an EMT-Paramedic. EMT-Paramedics complete a Paramedic Education Program accredited by the provincial or territorial Emergency Health Services National Standards committee which reports to the Emergency Health Services Registration Committee. All paramedic education programs follow Canadian Medical Association or an equivalent program approved by the Emergency Health Services Registration Committee. All paramedic education programs are accredited by the Emergency Health Services National Standards review committee, and follow the Paramedic Education Program comparison template. Each provincial or territorial

emergency health service has different career levels of EMT-Paramedic with different scopes of practice.

In 2003, in the United Kingdom, paramedics gained professional registration (Cooper, 2005). Thirteen health professions are regulated by the Health Professions Council (HPC), which not only regulates registration but also the accreditation of national educational standards. The professional bodies representing the health professions regulated by the HPC may also deal with representing members, promoting the profession, continuing professional education and development, post registration education and training. For British paramedics the authority is the British Paramedic Association. All British paramedic education programs are presented through nine universities. Qualifications and institutions are approved under the Health Professions Order, 2001. The council has also constructed and maintains a Health Regulation Worldwide database to assist in the identification of organisations throughout the world that regulate or control the practice of health care workers.

In South Africa the EMT-Paramedic is regulated by an advisory council on emergency medical service, which has physician-directed medical control. There are quality controlled review and training programs, including continuing education programs and instructor training programs. The Health Profession Council of South Africa (HPCSA), as part of its effort to establish and maintain national standards for EMT-Paramedics, provides registration to First Responders, Basic Ambulance Assistants (BAA), Ambulance Emergency Assistants (AEA), and Critical Care Assistants (CCA). Registration is obtained by successfully completing HPCSA practical and written examinations. The HPCSA is also active in EMS curriculum development. Despite the national governance each of the nine provinces applies its own interpretation of registration and has independent training, none of which is at university level.

This summary demonstrates that there is not a set pattern of registration or accreditation for EMT paramedic programs or personnel. In some instances there is a national set of standards for registration which dictates the requirements for accreditation of programs, while in other cases state and territory conditions are determined for select programs and independent interests.

In Australia there has been a consistent demand to establish a code of requirements to perform the EMT-Paramedic role. The concern to have this take place has been driven by the Australian College of Ambulance Professionals (ACAP) and the Convention of Ambulance Authorities (CAA). In conjunction with this, the Australian Health Ministers' Conference (2004) initiated a process which has resulted in a national policy for the health work force. (Productivity Commission reports 2005a, 2005b, 2005c, 2006).

These changes may bring about the expansion of university programs and influence their effect on paramedic employment. The Council of Australian Governments considered the Productivity Commission reports, along with a review of other health care issues by its senior officials and accepted its results (July 2006).

The Productivity Commission reports concluded that 'Australia is experiencing workforce shortages across a number of health professions despite a significant and growing reliance on overseas trained health workers. The shortages are even more acute in rural and remote areas and in certain special needs sectors.' The demand for health workforce services will increase while the labour market is expected to tighten.

With reference to the continuing debate over accreditation and registration, the Productivity Commission advised on an integration of the current profession-based accreditation of health education and training. This could be done through an over-arching national accreditation board that could, initially at least, delegate functions to appropriate existing entities. In turn this would provide national registration standards for health professions and for the creation of a national registration board with supporting professional panels. While the discussion has continued between the interested paramedic parties, the government has stepped in and created a structure which must now be adhered to. It is apparent that Australia will have a national set of standards for



accreditation of paramedic programs and this will allow graduates to gain nationally recognized registration, which will be portable both within Australia and internationally.

## FUTURE DIRECTIONS FOR PARAMEDICAL SCIENCE IN AUSTRALIA

The increased interest in the health industry from both the government and community level has resulted in a number of new directions being identified. The following have been identified as priorities that should be pursued if maximum use is to be made of the physical and human resources.

### **Rural paramedics**

Case studies (O'Meara, 2003; O'Meara et al, 2006) have shown that paramedics are becoming the first line primary health care providers in many small rural communities. With the shortage of doctors in these areas the paramedics are developing additional responsibilities through their cycle of care. This change has resulted in the development of broader scopes of practice for paramedics in response to changes in technology, education and the on-going shortage of health professionals.

There has been an initiative put forward to have a greater integration of paramedics into the rural communities and the health system. While there are divided opinions as to the role that they should fill, and just what responsibilities paramedics should be given, research has shown that they can fill the void that exists in these remote areas.

If this initiative continues to gain support there will be a need for training programs and university degrees to be adjusted to cater for the additional training that will be necessary in fulfilling the role of a rural paramedic. This initiative has the potential to be put in place across Australia.

### **Specialist paramedics**

The opportunities are beginning to emerge for paramedics to take on specialised roles at advanced levels. The areas that have been identified include: aviation paramedics, who work mainly with the helicopter rescue division; critical care paramedics and industrial paramedics. These three areas require specialised knowledge and skills and would therefore involve specialised courses at the postgraduate level.

### **International programs for paramedics**

The demand for the training of paramedics in overseas countries is steadily increasing. While the delivery of the theory components is not a problem, the issue of the practical units in the program presents a difficulty, because many of these countries have neither the facilities nor the trained staff capable of delivering the materials at the required level. This is an issue that needs to be further investigated so as to enable Australian universities to satisfy this significant demand for training.

### **Advanced training for paramedic lecturers**

Paramedical Science is a relatively new discipline within the university sector and there is a significant shortage of well qualified staff who can conduct the teaching roles at the tertiary level. There is a need to provide the opportunity for paramedics to gain the additional postgraduate qualifications in order to prepare them to take up university postings in the paramedical science area. This is an initiative that is now being seriously considered by the university departments and ambulance authorities.

## CONCLUSION

There has been a significant movement towards the tertiary sector in the development of paramedical degree programs in Australia. This trend has followed initiatives which began in the UK. Despite this strong movement, there are still those who question whether the role of the paramedics requires advanced skills (Battersby, 1999; Cooke, 1997; Johns, 1997). Agreement exists however, that there is a need for the paramedics role to be extended and the educational

program to be flexible rather than rigid. Research has demonstrated that there is a need for varying speciality demands that are emerging in the Australian health system.

Because of the variability of the existing degree programs across Australia, a process for accreditation and registration needs to be adopted so as to allow for the portability of qualifications throughout the country. With these issues in mind, the universities, ACAP and the CAA are consulting stakeholders on the development of a national framework which promises paramedic accreditation, registration and expansion of the degree programs to meet the growing requirements in the health system.

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