



## Discussion

## Development of a postgraduate interventional cardiac nursing curriculum



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## ABSTRACT

Interventional cardiology practices have advanced immensely in the last two decades, but the educational preparation of the workforce in cardiac catheter laboratories has not seen commensurate changes. Although on-the-job training has sufficed in the past, recognition of this workforce as a specialty practice domain now demands specialist educational preparation. The aim of this paper is to present the development of an interventional cardiac nursing curriculum nested within a Master of Nursing Practice in Australia. International and national health educational principles, teaching and learning theories and professional frameworks and philosophies are foundational to the program designed for interventional cardiac specialist nurses. These broader health, educational and professional underpinnings will be described to illustrate their application to the program's theoretical and clinical components. Situating interventional cardiac nursing within a Master's degree program at University provides nurses with the opportunities to develop high level critical thinking and problem solving knowledge and skills.

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## 1. Background

In Australia, there has been a 40% increase in coronary angiography procedures from 78,981 in 2000–01 to 110,614 in 2007.<sup>1</sup> Over this same time period, percutaneous coronary interventions have also risen to 34,972 per annum, an increase of 57%, with a corresponding decrease of 19% in coronary bypass grafting procedures from 16,696 to 13,612.<sup>1</sup> These data demonstrate the paradigm shift towards minimally invasive interventions as the preferred

strategy for the treatment of acute coronary syndromes. In particular, percutaneous coronary intervention (PCI) has also evolved as the preferred reperfusion therapy for acute myocardial infarction (AMI)<sup>2–5</sup> leading to a worldwide focus on systems of care that bypass the emergency department to expedite patients to the cardiac catheter laboratory (CCL) to optimise cardiac function.<sup>6–8</sup> This strategy for direct AMI admissions, combined with an increase in numbers of patients who traditionally were treated with cardiac surgery has increased the acuity of patients presenting to CCLs. New percutaneous valve technologies have also been developed to treat previously inoperable patients,<sup>9,10</sup> adding to both patient acuity and procedural complexity. The resulting paradigm shift in cardiac patient management has created challenges for the educational and preparing nurses to practice in this highly specialised area.

Variation exists in the composition of the CCL nursing workforce in Australian and New Zealand with even greater variation internationally. Interventional Cardiology Nursing (ICN) has emerged as a discipline within cardiac nursing that incorporates knowledge

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and skills from several nursing disciplines including cardiac, critical care and operating room nursing. The uniqueness of ICN arises from the way the discipline combines relevant core elements of those disciplines and expresses them within the specific context of the cardiovascular catheterisation laboratory.<sup>11</sup> The high-risk nature of the work – the tendency for high-acuity patients, some of which critically unwell – adds to the imperative for highly skilled and knowledgeable ICN professionals. Beyond knowledge and skills, the ways in which ICNs engage interdisciplinary colleagues and the relative egalitarian environment fostered by that collegial interaction is equally important to emphasise. The critical nature of the work means both cardiologists and nurses unanimously share profound responsibility for quality of care and patient safety.<sup>11</sup>

Given the unique nature of the ICN practice, a lack of structured formal education and training has left nurses without a formal means of obtaining advanced knowledge and skills needed to care for this increasingly complex patient group with multiple significant comorbidities. On the job training and recruitment of critical care qualified nurses have been the norm.<sup>11</sup> Although some postgraduate critical care programs have incorporated pre and post-interventional cardiac procedural care of patients, a lack of specialist knowledge in intra-procedural patient care has been highlighted by senior CCL clinicians as insufficient for nursing practice in modern CCLs. In particular, the increasing complexity of the practice setting necessitates the preparation of nurses with advanced critical thinking and problem solving skills.

Recent developments within interventional cardiovascular nursing demonstrate a trend towards greater cohesion as a discipline within cardiac nursing specifically, and critical care nursing more broadly. These developments include the establishment of a national representative body for interventional cardiac nurses as an affiliate of the Cardiac Society of Australia and New Zealand (CSANZ). A move to develop clinical practice guidelines<sup>12</sup> and positioning interventional cardiovascular nursing as a unique cardiac critical care discipline requiring advanced levels of education.<sup>13</sup> The professional issues inherent in the development of interventional cardiovascular nursing as a specialty means it is emerging as a discipline distinct from perioperative, perianaesthesia and intensive care nursing. As such, the discipline is in the process of developing an interventional cardiovascular nursing-specific scope of practice as well as standards for both practice and education.<sup>11,12</sup>

In this paper, the development of a postgraduate qualification specifically designed to educationally prepare nurses for managing intra and peri-procedural interventional cardiac patients will be described. Specifically this paper will focus on conceptual underpinnings of a program's curriculum designed to produce highly knowledgeable and skilled specialist nurses with advanced critical thinking and problem solving skills, as well as desired professional behaviours. The program curriculum is specific to interventional cardiac nursing, not cardiovascular nursing; the latter would include lower limb and other vessel/organ procedures which are not covered in our program.

## 2. Development process of the interventional cardiac nursing (ICN) stream

The aim of the university degree program described in this paper is to improve patient outcomes by educationally preparing nurses to provide evidence-based nursing practice and clinical leadership in CCLs. This high level preparation will advance the discipline of nursing, the specialisation of interventional cardiac nursing and nurses' own careers. The interventional cardiac nursing (ICN) program at Deakin University was created in 2013 within the existing Master of Nursing Practice (Cardiac Care) following an approach by a leading Australian CCL educator citing the paucity of

clinically orientated postgraduate education for interventional cardiac nurses. In response, the Course Director led a key stakeholder group including industry and university members (JC, KW, JR, AD) to oversee the drafting of the curriculum. Two of the development team (KW, JR) oversaw the development of the ICN-specific clinical content of the course nested in the existing cardiac program. Pivotal to the successful development of the ICN program was ensuring the curriculum was underpinned by concepts and principles of nursing care rather than teaching medical procedures carried out in CCLs. Like critical care units, different patient populations are treated in various levels of CCLs. The emphasis for nursing educationally is not instruction in actual procedures or patient diagnoses, but rather, a clinical risk management of all patients through critical clinical reasoning. In addition, we aimed to ensure nurses acquired research skills in terms of being aware of current ICN-specific research, learnt to appreciate rigorous research and could apply such a research in practice. The ability to conduct research in terms of producing a thesis was not an expectation of this program at the certificate or diploma level, but was only at the Master level.

## 3. Governance of postgraduate programs

As the interventional cardiac nursing program was designed within the existing suite of critical care programs (Intensive Care, Cardiac Care, Emergency Care, Critical Care, Perioperative), it had to meet requirements of the Australian Qualifications Framework (AQF) that governs postgraduate programs in Australia.<sup>14</sup> A postgraduate program in interventional cardiac nursing must meet AQF level 8 criteria whereby graduates will have advanced knowledge (theoretical and technical) and skills (cognitive, technical and communication) for professional or highly skilled work.<sup>14</sup> On completion of the course, graduates should be able to apply this acquired knowledge and skills as a practitioner demonstrating autonomy, well-developed judgement, adaptability and responsibility in a specialised context.<sup>14</sup> Currently, postgraduate critical care nurses do not have to meet national registration governance requirements unlike midwifery or mental health.<sup>15</sup> Furthermore, for CCL nurses, the Interventional Nurses' Council does not currently endorse, stipulate or recommend content (theoretical or practical) for education programs.<sup>13</sup> As noted, the interventional cardiac nursing program was designed within the existing cardiac care program which is underpinned by international and national health educational principles, teaching and learning theories, and professional frameworks and philosophies. These broader health, educational and professional underpinnings will be described to illustrate the foundations of the program's theoretical and clinical components (Fig. 1).

## 4. Health educational frameworks

Consistent with the critical care suite of postgraduate programs, the interventional cardiac curricula was underpinned by health education frameworks of the World Health Organisation (WHO) Patient Safety Curriculum,<sup>16</sup> the World Federation of Critical Care Nurses (WFCN) Education Position Statement<sup>17</sup> and the Australian College of Critical Care Nurses (ACCCN) Position Statement (2006) on the Provision of Critical Care Nursing Education.<sup>18</sup> All aspects of the WHO Patient Safety Curriculum<sup>16</sup> were pertinent to interventional cardiac nursing, with patient safety and invasive procedures, infection prevention and control, being an effective team player and medication safety highlighted as key areas of emphases. The central principles of the WFCN (see Table 1) are pertinent to interventional cardiac nursing. In particular, possessing appropriate knowledge and skills to effectively meet the needs of critically ill patients, societal demands and challenges of

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