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Astin, F, Carroll, DL, Ruppar, T et al. (5 more authors) (2015) A core curriculum for the continuing professional development of nurses: Developed by the Education Committee on behalf of the Council on Cardiovascular Nursing and Allied Professions of the ESC. European Journal of Cardiovascular Nursing, 14 (3). pp. 190-197. ISSN 1474-5151

https://doi.org/10.1177/1474515115572048

Title: A core curriculum for the continuing professional development of nurses working in cardiovascular settings

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Keywords Cardiovascular nurses, continuing professional education, syllabus, core curriculum

Abstract

Background: The European Society of Cardiology (ESC) and the Council on Cardiovascular Nursing and Allied Professions (CCNAP) share a vision; to decrease the burden of cardiovascular disease in Europe. Nurses represent the largest sector of the health professional workforce and have a significant contribution to make which has not yet been fully realised. Recent evidence highlights an association between the level of nurse education and in-patient mortality making this an important topic, particularly as the provision of nurse education in Europe is variable. **Aim**: To develop a core curriculum to inform the education of nurses following initial qualification for work in cardiovascular settings. **Results**: Eight key themes characterise the core curriculum and are presented together with an account of the development process. Whilst the curriculum is not intended to cover all aspects of the highly complex role of the cardiovascular nurse, the themes do exemplify the science and art of nursing, and are transferable across different levels of clinical practice and settings. The curriculum functions both as a 'map', which identifies key themes to include in nurse education, and as a 'tool' to inform educational provision that bridges' the gap between initial nurse education and advanced specialist practice. Content can be tailored for use and adapted to reflect the specific needs, health priorities, legislative and regulatory standards that govern nursing practice across different countries. **Conclusion**: The core curriculum can be used as a learning framework to guide nurse education, in particular the continuing professional education of post-qualifying nurses working in cardiovascular settings. This represents the first step towards the harmonisation of the cardiovascular nurse education in Europe. (267 words)

Introduction/Background

Noncommunicable diseases (NCDs) include cardiovascular diseases such as coronary heart disease and stroke represent a significant global health burden and are the leading cause of mortality worldwide[1]. The greatest health challenge we face today is a growing and ageing population with an increase in the epidemic of lifestyle-related conditions such as obesity and diabetes[2]. The healthcare workforce will need to be equipped to deliver care for older people living with one or more long term conditions which will make their care needs increasingly complex[3].

The prevalence of cardiac conditions such as heart valve disease and rhythm disorders (e.g. atrial fibrillation and heart block) is predicted to increase[4]. There will be a greater demand for advanced technologies such as scanning and diagnostic services as the current pace of technological innovation continues to evolve. This may challenge the sustainability of health service provision in some countries[5].

Social and economic factors will continue to be powerful determinants of health[6]. Health inequalities have always existed with populations living in poorer socioeconomic regions experiencing higher levels of illness. Unfortunately such inequalities have increased and the prevalence of cardiovascular conditions and the provision of treatment are inconsistent by gender, ethnic group and across geographical boundaries[7]. Health inequalities are influenced by health literacy; which we have defined as the ability and opportunity that an individual has to access, read and understand high quality health information that has the potential, if implemented into everyday life, to enhance health promotion and well-being. Health literacy is an important concept; studies have shown that health literacy is associated with

effective self-management and concordance with prescribed medications[8]. A significant proportion of the illness that afflicts many people is preventable; hypertension, tobacco smoking, air pollution, a diet low in fruit, alcohol use and high body mass index are the leading risk factors that contribute to the overall disease burden, expressed as the number of years lost due to ill-health[2].

To tackle this challenge nurses and other members of the multidisciplinary team will need to focus greater attention on primary and secondary prevention initiatives[9]. This longer term approach to healthcare provision represents a significant paradigm shift. Where possible, the new emphasis must be upon actively avoiding illness, through prevention, rather than focusing upon finding a cure once a health condition has developed[9]. For all of these reasons the educational provision of cardiovascular nurses needs to reflect the changing healthcare needs of our global population.

The profession of nursing has evolved considerably since the time of Florence Nightingale. Programmes leading to professional registration lay down the foundation for lifelong learning and consist of approved courses of study and practice elements that must be completed for an individual to practice within their country. However educational programmes that nurses undertake to prepare them for clinical practice differ by content, duration, delivery and setting across European countries[10]. Moreover the scope of the nurse's role and associated responsibilities vary across countries[11]. Inclusion on a professional register is one approach that can help to standardise clinical practice and ongoing clinical competency. At this time not all countries offer nurses this opportunity. There is a pressing need to provide nurses in Europe with access to Bachelor level education. This is because there is compelling

evidence that the level of nurse education, together with the nurse-to-patient ratio, has an impact on 30-day in-patient mortality rates; hospitals with a greater number of their workforce educated to Bachelor level have lower 30-day in-patient mortality, compared to those with less[12].

In thinking about the delivery of education for nurses, theory suggests that knowledge and understanding is constructed by the interactions that occur between the student and his/her environment[13]. Nurses develop skills and understanding through reflection on clinical experiences combined with education[14]. Such knowledge and clinical skills develop over time and evolve on a continuum. The nurse theorist, Patricia Benner, provides us with a useful model that describes this continuum which consists of five levels of nursing experience which range from novice to expert[15] (Fig 1).

Figure 1 here please

Following initial preparation it is important that nurses maintain their competence to practice through ongoing education. The World Health Organization (WHO) European Strategy for Continuing Education for Nurses and Midwives[16] contains a clear directive about the link between initial and continuing education;

'The initial programme of education must prepare nurses and midwives who are not only competent to practise in today's health services, but who value and are committed to maintaining that competence. This they will achieve through continuing to update their knowledge, skills and attitudes, in order that they can continue to

meet the changing health priorities and needs of the people of the Member States' (WHO, 2003, pg1).

Whilst an evolution toward a clearly articulated level of educational achievement for nurses from bachelor, masters and doctoral degrees has been agreed[17] access to this educational trajectory for all is not equal. There remains a wide variety of post registration educational provision ranging from short introductory courses to more advanced programmes aimed at preparing nurses for advanced/specialist roles. Limited information exists about the nature of competencies and content of curricula that characterize existing post-registration cardiovascular nursing education programs in other countries[10].

The Education committee of the ESC identified the need to develop both core[18] and specialist curricula through an E-Learning platform[19] as a tool that could support the harmonisation of the educational preparation of physicians training to become cardiologists in Europe. The Education committee of CCNAP followed suit and developed a core curriculum to provide a framework for continuing professional education (CPE) for qualified cardiovascular nurses at Level 5-6 of the European Qualifications Framework[20] (See Figure 2).

Figure 2 here please

Core Curriculum Development

i) Process

The development of the core curriculum was an iterative rather than linear process led by the Education Committee of CCNAP. A major challenge at the outset of the project was the need to identify a start and end point to guide the complexity of the content and associated level of education. Benner's theory (1982) of experiential learning[15] (Fig 1) informed our decision making and we concluded that our students would be considered competent in adult nursing, as they had completed initial educational preparation within their country, but would be at novice level with regard to cardiovascular nursing. This enabled us to distinguish between the content that would be included in the syllabus and core curriculum as opposed to more specialist/advanced educational content. Once we had decided on the educational level then the focus was upon identifying key stakeholders who could guide our decision regarding content. Accordingly it was imperative that we identify key stakeholders who had the relevant knowledge, understanding, skills and experience. A consultation process followed in which a draft was circulated supported by a series of meetings to identify and refine curriculum aims and the related content that would comprise the syllabus. Reviewers included service users, cardiologists, nurses, academics, researchers and educators. Drafts were also reviewed by the ESC Education committee, CCNAP Board and the National Societies of CCNAP.

ii) Core Curriculum Aims

The specific aims of the core curriculum were that on completion of training pathway students should have provided evidence of being able to:

- Understand and demonstrate coherent and detailed knowledge and understanding of adult cardiovascular nursing care
- Develop clinical skills in cardiovascular nursing to support practice within the legislative and regulative frameworks and scope of practice of your host country
- Demonstrate the delivery of high quality, age appropriate and culturally competent care, characterised by a caring and compassionate approach and underpinned by effective communication skills
- Work in partnership with service users, carers, and families to promote positive health and prevent illness through individualised care that accounts for varying health literacy
- Identify and implement clinical guidelines and other sources of research evidence relevant to nursing practice in order to provide nursing care that is safe, effective and evidence based
- Work inter-professionally with all members of the health and social care team to identify health care needs, and develop individualised plans of care leading to positive health care outcomes for adult service users, families and carers
- Reflect upon and apply ethical and legal principles to cardiovascular nursing care and practice within the professional boundaries and guidelines of the professional regulatory bodies and institution from host country

- Develop leadership and management skills and contribute to service design and delivery in order to maintain and improve standards of care

iii) Core curriculum content

The first step in the development of the core curriculum was the identification of relevant content for the syllabus. Our syllabus was developed by a panel of experts and subject to rigorous review as part of the consultation process. The syllabus and core curriculum seek to shift the emphasis away from the biomedical approach to care delivery and strengthen the person and family centred perspective. The key components of person and family centred care identified in a recent concept analysis[21] were integrated into the content; these were effective communication, learning and teaching skills, the ability to facilitate patient autonomy and provide individualised care in a respectful manner. Findings from a large scale survey of over 68,000 in-patients in Europe identified similar concepts which were considered to be key 'markers' of quality care by in-patients[22] (See Table 1).

Table 1 here please

The change in population demographics leading to an ageing population was also considered in the development of the content[23,24] as was reference to the importance of evidence based practice and the recognition of the actual, and potential role, of the nurse in implementing clinical guidelines which has yet to be fully realised. The syllabus content is arranged under 8 themes which characterise the core curriculum shown in Figure 3.

Insert Figure 3 here please

It is beyond the scope of this manuscript to showcase the complete document; Appendix 1. shows the first theme of the core curriculum ‘Fundamentals of Cardiovascular Pathophysiology’ as an example. A detailed knowledge of the underlying cardiovascular pathophysiology is an essential prerequisite for understanding the rationale for the assessment and management strategies that a person with a cardiovascular condition will experience as part of his or her care. We did not intend to cover all relevant content but wanted to highlight the anatomy, pathophysiology and physical manifestations of common cardiovascular conditions which we considered to represent ‘core’ learning. We grouped these conditions into four;

1. Atherosclerotic disease & consequences
2. Heart rhythm & conduction disorders
3. Structural abnormalities of the heart
4. Heart muscle disorders

Having established a first draft of the learning we consider to be ‘core’ the next step is to identify advanced/specialist curricula. Other specialist groups within the ESC will develop such material. Figure 4 shows the key organisations within the ESC and illustrates the ‘fit’ of the core curriculum for nurses with other advanced/specialist curricula for nurses developed, or under development.

Figure 4 here please

The Heart Failure Association (HFA) convened a Task Force to update the Heart Failure Nursing curriculum document[25]. A close collaboration with them enabled us to understand and accommodate for the inevitable overlap across the core and specialist/advanced cardiovascular nursing curricula.

Discussion

We have presented an overview of the core curriculum for cardiovascular nursing and detailed its development. This is an important first step as we understand this is the first document of its kind to take a European perspective on educational provision for cardiovascular nursing. The core curriculum is person and family centred[21,22] and informed by educational theory[13,14]. It is designed to be used flexibly and can function as both a 'map', that identifies important themes that should be included in nurse education, and also a tool that provides an educational 'bridge' between initial preparation and advanced specialist practice. The curriculum can be tailored for use by each country according to its own specific needs and priorities together with the unique legislative and regulatory standards that govern nursing practice. In this way it is our aspiration that the education and practice of nurses working in cardiovascular setting can be harmonised across Europe. We recognise that this process will take many years. We envisage that the core curriculum represents a small, but significant step, in the advancement of cardiovascular nurse education. Little is known about post registration and continuing education for

cardiovascular nurses across Europe[10]. This curriculum has been produced to address this shortfall by outlining the desired components in post-registration cardiovascular nursing training programs and continuing education offerings. We envisage that the core curriculum will provide a useful learning framework from which curricula can be developed to meet each European country's specific needs and priorities in cardiovascular nursing.

In view of the international, national and regional variance in legal frameworks, professional regulatory requirements, educational and organisational quality assurance processes[10] we have avoided reference to particular benchmark statements. However it is recognised that different countries and institutions may consider developing or adopting specific benchmarks to fulfil particular needs, or to meet country-specific legislative or regulatory requirements.

Conclusion

As cardiovascular nurses grow in their professional roles and seek further training in their chosen specialty, it is vitally important that the post-registration education they receive is guided by a consistent curricular framework to harmonise the level of nursing care across Europe. This is especially important given the established association between the level of nurse education and in-patient mortality[12]. While this core curriculum is not perfect, it does represent a brave starting point, rather than a final end point. Our aspiration is to ensure that cardiovascular nursing education programs address the domains and learning outcomes presented in this core curriculum which will help to ensure that essential content is covered and a basic level of quality achieved across such educational programs. We hope that institutions of nursing education, professional organizations, and nursing regulatory

bodies in European countries will utilize this curriculum framework as new cardiovascular nursing education and continuing professional education programs are developed or revised. The next step is to translate the document to expedite uptake of the learning across countries in Europe and to address some of the challenges linked to future accreditation of educational modules currently under development.

Appendix 1: Excerpt from Core Curriculum

Fundamentals of Cardiovascular Pathophysiology

Objectives:

- Understanding normal and altered anatomy and physiology of the CV system
- Describe the pathophysiological explanation for common CV disorders
- Recognise pathophysiological basis of signs and symptoms and changes indicative of deterioration

Knowledge:

An understanding of the anatomy, pathophysiology and physical manifestations of common CV conditions outlined below:

- Atherosclerotic disease (*IHD, stroke, *PVD)
- Heart rhythm and conduction disorders (Tachy/brady arrhythmia, conduction defects)
- Structural abnormalities of the heart (Congenital, valve disease)
- Heart muscle disorders (Infective, inflammatory, acute and chronic heart failure, cardiogenic shock)

Skills:

- Apply knowledge of anatomy, physiology and pathophysiology, in clinical practice, and recognise the clinical manifestations of CVD
- Recognise normal ranges of physiological parameters and distinguish between those that are normal, abnormal and life-threatening
- Measure and document physiological parameters

- Take appropriate action in response to alternations in physiological parameters outlined in clinical guidelines

Attitudes & Behaviours:

- Appreciate the importance of continuing to review knowledge of pathophysiological principles.

*IHD Ischaemic heart disease (stable angina and acute coronary syndrome)

*PVD Peripheral vascular disease

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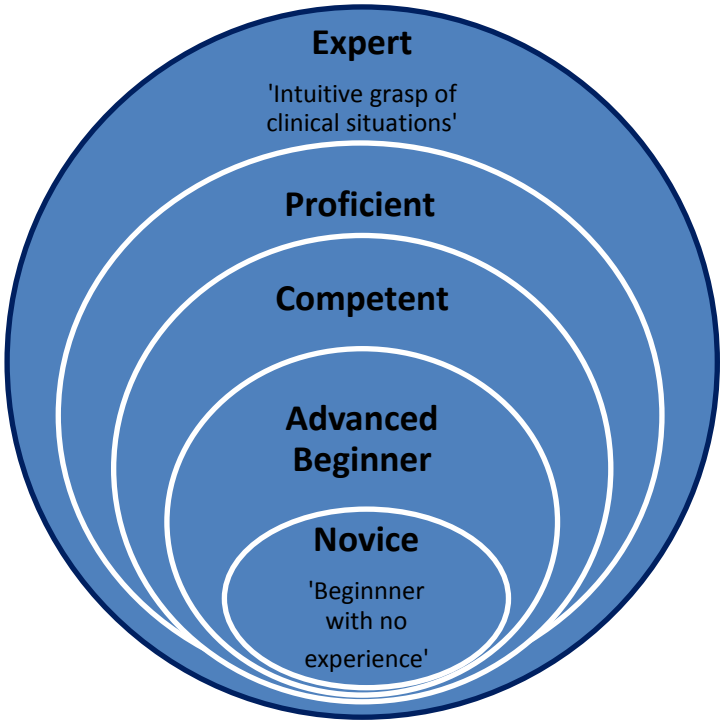
Acknowledgements

We would like to acknowledgement and sincerely thank all of the individual reviewers, contributors and organisations, too numerous to mention, who have assisted us in the development of the core curriculum.

The authors have no conflict of interest to declare.

The work was supported by the European Society of Cardiology.

Figure 1. Continuum of nursing experience



Adapted from Benner (1982)[15]

Figure 2. Continuum of Nurse Education

ECTS* European Credit Transfer and Accumulation Scheme: a standard that enables comparison of student attainment and performance across educational programs.
EHEA* European Higher Education Area formed by 46 countries[17]

Figure 3 Core curriculum themes and indicative content

Figure 4. How the core curriculum ‘fits’ with other nursing curricula

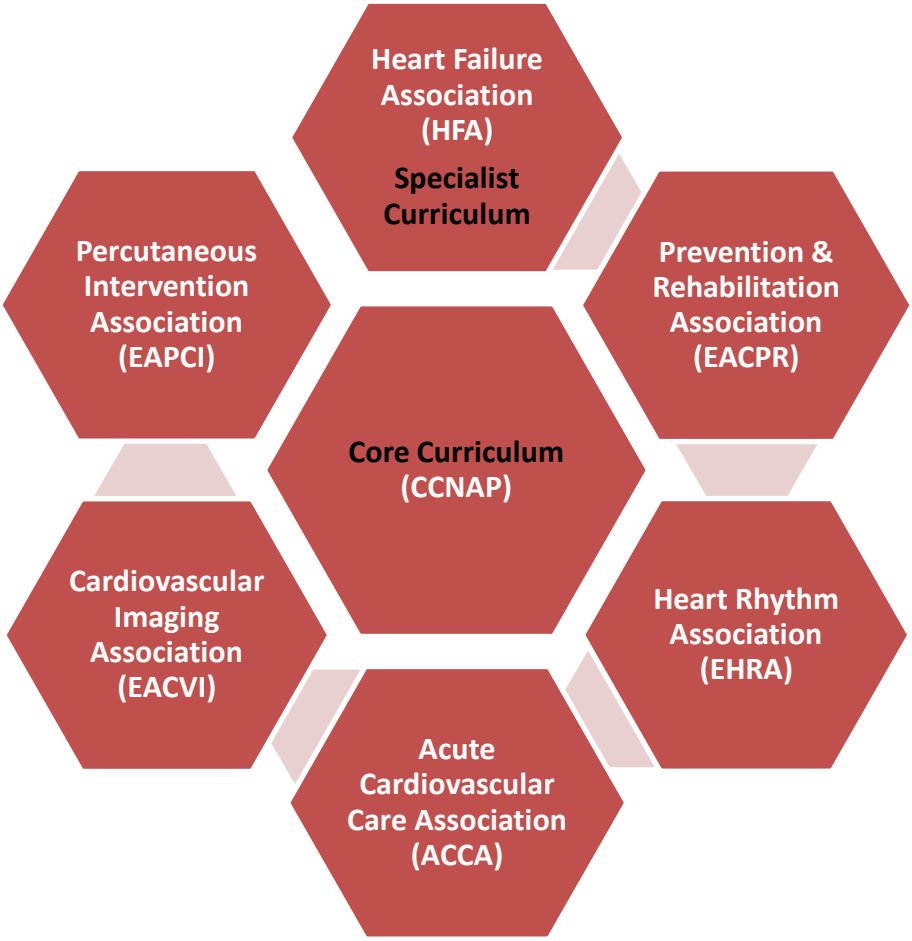


Table 1.

What is a quality experience?

- Communication & information
- Involvement
- Dignity & respect
- Pain relief
- Self-management

1. Identifying and accessing a member of hospital staff that a patient or family member/carer can talk to about health concerns.
2. Having the opportunity to discuss fears and anxieties about condition or treatment with a physician and/or nurse.
3. Having questions answered by a physician or nurse in a way that they could understand.
4. Being given information that is consistent rather than conflicting.
5. Being actively involved in discussions and decision-making about condition, care and treatment.
6. Being treated with dignity and respect while in hospital.
7. Having pain managed sensitively and effectively.
8. Being given an explanation about how to manage prescribed medicines (purpose of medicine, how to take it and any potential side effects) and being told about 'danger signals' to watch out for after going home and advised about appropriate action to take if such signals should occur.

(Adapted from Jenkinson, Coulter and Bruster[22]).