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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. **Method:** A syllabus was developed using published literature, policy documents, and existing curricula with expert input from service users, specialist nurses, cardiologists, educationalists and academics. The syllabus formed the framework for the development of the core curriculum. **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 adapted for use to fit the national context and reflects the specific needs, health priorities, legislative and regulatory standards that govern safe 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 a significant step towards the streamlining the cardiovascular nurse education in Europe.

Introduction/Background

Noncommunicable diseases (NCDs) which include cardiovascular diseases such as coronary heart disease and stroke represent a significant global health burden and are the leading cause of mortality worldwide^{1,2}. 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 diabetes³. 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^{2,4}.

The prevalence of cardiac conditions such as heart valve disease and rhythm disorders (e.g. atrial fibrillation and heart block) is predicted to increase⁵. There will be a greater demand for advanced technologies such as scanning and diagnostic services as the current pace of technological innovation continues to accelerate. This transformation may challenge the sustainability of health service provision in some countries⁶.

Social and economic factors will continue to be powerful determinants of health^{2,7}. Health inequalities have always existed among populations living in poorer socioeconomic regions who generally experience 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 boundaries⁸. 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 medications⁹. A significant proportion of the illnesses that afflict our global population are preventable; hypertension, tobacco smoking, air pollution, a diet low in fruit and vegetables, overweight and obesity, alcohol abuse and physical inactivity risk factors that make a significant contribution to the overall disease burden, expressed as the number of years lost due to ill-health³. To tackle this challenge nurses and other members of the multidisciplinary team will need to focus greater attention upon working as a team to support people, and their families, to self-manage their health in a flexible way² with a focus upon both primary and secondary prevention initiatives¹⁰. Where possible, the emphasis must be upon the proactive avoidance of ill health, through prevention, rather than a focus cure after a health condition has already developed¹⁰. This focus upon 'care' rather than 'cure' represents a significant paradigm shift. 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 countries¹¹. Recent policy identifies that countries share similar challenges but begin from very different starting points with diverse service delivery contexts and workforce capacity². This diversity is reflected in the educational preparation of nurses and the scope of their role and associated responsibilities which vary considerably by country¹². 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. A minimum standard for pre-registration nurse education has been in existence since the 1970's, but the legislation does not go as far as specifying where the education should be delivered, university or otherwise, or the level of the required qualification¹³. There is a pressing need to provide all nurses in Europe with access to Bachelor

level education¹⁴. This is vital because there is compelling evidence that indicates 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 less¹⁵.

In thinking about the delivery of education for nurses, theory suggests that the interactions that occur between the student and his/her environment are key in informing the construction of knowledge and understanding¹⁶. Nurses develop skills and understanding through education combined with reflection on clinical experiences that occur in the work place ¹⁷. 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 is characterised by five levels of nursing experience ranging from novice to expert¹⁸

There is general agreement that learning is an ongoing process. Accordingly it is important that nurses maintain their competence to practice, after initial educational preparation, through ongoing education. The importance of improving initial and continuing education for nurses and access to higher education is outlined as an important priority in several key policy documents¹⁹⁻²⁰.

Whilst an evolution toward a clearly articulated level of educational achievement for nurses from bachelor, masters and doctoral degrees has been agreed ^{19,21} access to this educational trajectory is not equal for all those who would benefit. 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 countries¹¹.

The Education committee of the ESC identified the need to develop both core²² and specialist curricula through an E-Learning platform²³ as a tool that could support the streamlining 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 Framework²⁴ (See Figure 2).

Figure 2 here please

Core Curriculum Development

i) Process

Designing a curriculum for use across several countries is an ambitious initiative. Learning from other disciplines it became clear that a 'grass roots' approach rather than a 'top down' initiative was the preferred approach²⁵. This approach emphasises the decentralisation of decision making and devolves change to occur at a local level supporting the autonomy and shared responsibility of each individual country and recognising that the curriculum would be a blue print which could be used by Ministries of Health, Universities and Technical Colleges to update, rather than replace existing curricula. To start this process a syllabus was developed using published literature, policy documents, and existing curricula with expert input from service users, specialist nurses, cardiologists, educationalists and academics. The syllabus formed the framework for the development of the core curriculum. This 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 and level of the content. Principles outlined by key educational theorists^{17,18} informed our decision making and guided our thinking about how to classify the experience levels of nurses in Europe who would potentially use the curriculum. We concluded that our students would be considered competent in adult nursing, as they had completed initial educational preparation within their own country, but would be at novice level with regard to cardiovascular nursing. This important distinction enabled us to differentiate between content that would be included in the syllabus and core curriculum as opposed to that covered by

specialist/advanced educational curricula. Once we had decided upon the requisite educational level then our next step was to identify key stakeholders who could guide our decisions regarding the selection of appropriate content. Accordingly it was imperative that we identify contributors with the relevant knowledge, understanding, skills and experience. A draft was produced, following a consultation process, which was then circulated and revised during 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 analysis²⁶ 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-patients²⁷

The change in population demographics leading to an ageing population was also considered in the development of the content²⁸⁻²⁹ 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. However the full version is available as a supplemental file (details TBC). 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, such as the Heart Failure Association, within the ESC are currently developing such material. In this way the content within the core curriculum will link with and overlap specialist content to progress and advance cardiovascular nurse education in a logical step wise fashion.

The Heart Failure Association (HFA) convened a Task Force to update the Heart Failure Nursing curriculum document³⁰. Close joint working 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 development as we understand that this is the first document of its kind, which we are aware of, to take a European perspective on educational provision for cardiovascular nursing. The core curriculum is person and family centred²⁶⁻²⁷ and informed by educational theory¹⁷⁻¹⁸. 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 legislative and regulatory standards that govern safe nursing practice. In this way it is our aspiration that the education and practice of nurses working in cardiovascular setting can be streamlined across Europe. We recognise that this process will take many years but 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 Europe¹¹. 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,¹¹ we purposefully avoided reference to particular benchmark statements about competency. The aim of the core curriculum was not to prescribe a competency level for cardiovascular nursing across Europe as this would assume that everybody is starting from a similar educational level which is not the case. Recent policy emphasises that each country has a different starting point regarding healthcare provision along with the concomitant workforce capability and capacity². Whilst we agree that our long term goal and aspiration would be to have specific competency levels prescribed for cardiovascular nurse education we believe that this would be more effectively achieved by devolving this to a local level. There are several key documents that can guide these processes in individual countries (Tuning Association 2010). We believe that this is likely to be a more effective approach than the imposition of an educational initiative using a 'top down' leadership approach. The strengthening of the invaluable National Societies network offers an ideal mechanism by which the curriculum can be disseminated. The core curriculum we have developed can be used flexibly which gives the participating country the opportunity to develop the educational pathway of nurses to suit their individual needs over a period of time. However it is recognised that different countries and institutions may consider developing or adopting specific benchmarks to fulfil particular needs, or to meet their own country-specific legislative or regulatory requirements.

A key factor for success in the implementation of the curriculum will be the involvement of all key players rather than a single organisation. We aim to disseminate the document to relevant professional organisations, universities, ministries of health, technical colleges, hospitals, teachers, researchers and the learners themselves. We will make the full core curriculum freely available on the CCNAP website and promote it at a 'grass roots' level for devolution through National Societies. To support the implementation process we plan to network with several key organisations who share our vision about equipping nurses with the educational opportunities they need to enable them to expand their scope of practice and tackle the burden of NCD's. This may

be a challenge as some countries do not have a critical mass of appropriately prepared nurses at this time to enable them to engage with this opportunity¹⁴. This means we need to raise awareness amongst governments and society regarding the untapped potential of professional nurses as multidisciplinary team members; collaborative working that can translate into health benefits for the population. The WHO Regional Office for Europe, European Forum of National Nursing and Midwifery Association and the International Council for Nursing are all influential partners who can promote initiatives to raise the profile of nurses in Europe. We would envisage that we would evaluate the uptake and impact of the core curriculum on nurse education by conducting a survey to evaluate progress against earlier findings¹¹.

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 streamline the level of nursing care across Europe. This is especially important given the established association between the level of nurse education and in-patient mortality¹⁵. 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

References

1. Riley L, Cowan M (2014) Non-Communicable Diseases Country Wide Profiles World Health Organisation, Geneva, Switzerland.
<http://www.who.int> accessed January 2015
2. World Health Organisation (2013) *Health 2020 A European policy framework and strategy for the 21st century*. WHO Regional Office for Europe, Copenhagen, Denmark accessed at <http://www.euro.who.int> January 2015.
3. Murray CJL and Lopez AD (2013) Measuring the global burden of disease. *New England Journal of Medicine* 369:448-457.
4. Grady PA (2011) Advancing the health of our aging population: a lead role for nurses *Nursing Outlook* 59; 207-9.
5. Osnabrugge RLJ, Mylotte D, Head SJ, Van Mieghem NM, Nikomo VT, LeReun CM, Bogers JC, Piazza N, Kappetein AP (2013) Disease prevalence and number of candidates for Transcatheter Aortic Valve Replacement: A meta-analysis and modelling study *Journal of American College of Cardiology* 62(11):1002-1012.
6. Alter DA, Stukel TA and Newman A (2006) Proliferation of cardiac technology in Canada, a challenge to the sustainability of Medicare. *Circulation* 113:380-387.

7. Singh-Manoux A, Nabi H and Shipley M (2008) The role of conventional risk factors in explaining social inequalities in coronary heart disease: the relative and absolute approach to risk. *Epidemiology* 9:599-605.
8. Ye J, Mack D, Fry-Johnson Y, Parker K. (2013). Health care access and utilisation among US-born and foreign-born Asian Americans. *Journal of Immigrant and Minority Health*, 14(5);731-737.
9. Peerson A, Sauders M (2009) Health literacy revisited: what do we mean and why does it matter? *Health Promot Int* 24(3):285-296.
10. Chrakida C, Masi S, Deanfield JE (2013) Focus on cardiovascular disease prevention. *Eur Heart J* 34(4):314-317.
11. Astin F, Carroll DL, De Geest S, Martensson J, Jones I, Hunterbuchner L, Jennings C, Kletsiou E, Serafin, Timmins F (2013) Education for nurses working in cardiovascular care: a European survey. *Eur J Cardiovasc Nur*. DOI:10.1177/1474515113514864
12. Watkins H (2010) An overview of the role of nurses and midwives in leadership and management in Europe. NHS Institute for Innovation and Improvement and the European Hospital and Healthcare Federation.
13. Schmitt-Flynn O. *Nursing and Midwifery Progress Report 2008-12* WHO: Geneva, Switzerland www.who.int/hrh/nursing_midwifery/en/ accessed January 2015
14. World Health Organisation (2009) Global standards for the initial education of professional nurses and midwives. Geneva, Switzerland

January 2015.

15. Aiken LH, Sloane DM, Bruyneel L, Van den Heede K, Griffiths P, Busse R, Diomidous M, Kinnunen J, Kózka M, Lesaffre E, McHugh MD, Moreno-Casbas MT, Rafferty AM, Schwendimann R, Scott A, Tishelman C, van Achterberg T, Sermeus W, for the RN4CAST consortium (2014) Nurse staffing and education and hospital mortality in nine European countries: a retrospective observational study. *The Lancet* doi:10.1016/S0140-6736(13)62631-8.
16. Peters M (2000) Does constructivist epistemology have a place in nurse education? *J Nurs Educ* 39(4):166-72.
17. Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. New Jersey: Prentice-Hall.
18. Benner P. (1982) From novice to expert. *The American Journal of Nursing*, Vol. 82 (3): 402-40.
19. World Health Organization (2000). *Munich declaration: nurses and midwives: a force for health*. Copenhagen, Denmark : WHO
20. World Health Organization (2003). *Nurses and Midwives: A Force for Health. WHO European Strategy for Continuing Education for Nurses and Midwives* .Copenhagen, Denmark: WHO.

21. The Bologna Declaration (1999) accessed January 2015

www.ehea.info/Uploads/about/BOLOGNA_DECLARATION1.pdf

22. Gillebert TC, Brooks N, Fontes-Carvalho R, Fras Z, Gueret P, Lopez-Sendon J, Salvador MJ, Van den Brink RA, Smiseth O (2013) ESC Core Curriculum for the General Cardiologist. European Heart Journal 00,1-31 doi:10.1093/eurheartj/eh234.

23. ESCeL ESC eLearning Platform accessed at

<http://www.escardio.org/education/escel/Pages/welcome.aspx> January 2015.

24. The European Qualifications Framework Descriptors accessed at

<https://ec.europa.eu/ploteus/content/descriptors-page> January 2015.

25. Beacco JC, Byram M, Cavalli M, Coste D, Cuenat ME, Gollier F, Panthier J. 2010 Guide for the development and implementation of curricula for plurilingual and intercultural education. Council of Europe. Geneva, Switzerland accessed September 2014 www.coe.int/lang.

26. Lusk JM, Fater K (2013) A concept analysis of patient-centered care. Nurs Forum 2013 48(2):89-98.

27. Jenkinson C, Coulter A and S Bruster (2002) The Picker Patient Experience Questionnaire: development and validation using data from in-patient surveys in five countries. International Journal for Quality in Health Care (14)5: 353-358.

28. Ageing in the twenty-first century: a celebration and a challenge. United Nations Population Fund (UNFPA) and Help Age (2012) New York: UNFPA, London: Help Age International.
29. Retooling for an aging America, building the health care workforce. Washington DC: The National Academies Press (2008)
30. European nursing training programme for clinical expertise in heart failure
<http://www.escardio.org/communities/HFA/committees/hfmanagement/Pages/Training.aspx>
accessed January 2015.
31. Nuffic / TUNING Association (2010) Tuning educational structures in Europe, a guide to formulating degree programme profiles Including Programme Competences and Programme Learning Outcomes <http://core-project.eu/documents/Tuning%20G%20Formulating%20Degree%20PR4.pdf> accessed January 2015

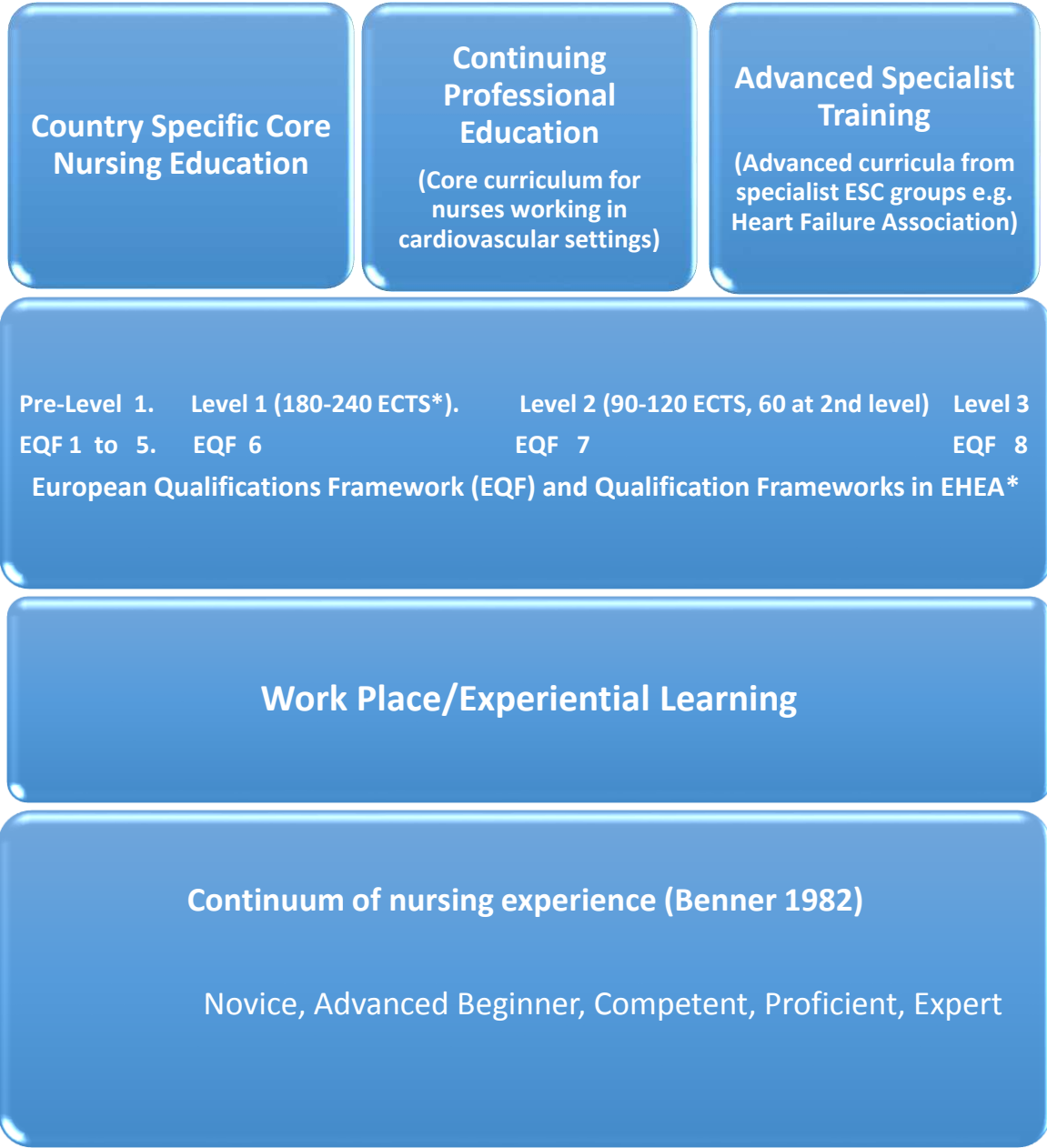
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Figure 2. Continuum of Nurse Education



ECTS* European Credit Transfer and Accumulation Scheme: a standard that enables comparison of student attainment and performance across educational programs. There is no range allocated at level 3. EHEA* European Higher Education Area formed by 46 countries²⁴ First cycle corresponds to Bachelor’s level, second cycle to Master’s level and third level to PhD.

Figure 3 Core curriculum themes and indicative content

