Heart failure Association of the European Society of Cardiology Heart Failure Nurse Curriculum

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Abstract:

The contribution that nurses can make to the improved outcome of patients with heart failure has long been recognised. Despite this there is wide variation in the roles and responsibilities of nurses across Europe and in the underpinning education and training opportunities. Here we outline 10 topic areas that address heart failure nursing: in acute and ambulatory care settings: to special populations: and in leadership. For each topic we have outlined the knowledge, skills and professional behaviours that should be attained. The purpose of this heart failure nurse curriculum is to provide a blue print for the development of nurse education and contribute towards the delivery of high quality heart failure patient care across Europe.

Introduction:

Heart failure continues to increase in prevalence. This is influenced by the increasingly aging population, early diagnosis and effective management. Recent advances in care and management have improved outcome. However patients remain at an increased risk of death, hospitalisation and frequently experience a reduced quality of life. From a health services view-point, heart failure continues to have a major economic impact primarily through repeated hospitalisations and high use of healthcare services. The developing evidence-base for the use of medications and implantable devices has contributed to the improvement in outcome. [1] However such technological advances carry with them an increased risk of adverse events and increase the 'burden' of self-care. In addition the increasingly elderly and frail patient with heart failure also has comorbid conditions. These add to the complexity of managing the bio-medical as well as psychological and social response to illness and complicate self-care behaviours.

In response there has been a change to the way in which heart failure services are organised and to the delivery of structured out-patient monitoring and follow-up. In many countries this has led to a rethinking of the traditional healthcare professional roles and responsibilities and the nurse now provides a range of health-care services. These include: providing care for patients with acute and with chronic heart failure: working in and across different sectors of care (inpatient, outpatient, community care, the home and remotely): organising care services around the face-to-face and the remote collection of patient data; and liaising with a wide variety of healthcare providers and professionals. [2] To support such advances the nurse requires a skill set that goes beyond that of their initial education and training.

Rationale:

All patients with heart failure should have access to high quality care that is provided by a knowledgeable and skilled heart failure team. The association between the competence of nurses and quality of care has long been recognised. Most recently this has been confirmed in a study of patients in nine European countries that reported a reduction in the risk of death where patients were cared for by academically prepared nurses. [3] Whilst this study reports on the care and outcomes of patients in an acute hospital setting it is highly likely that similar results will be found more widely. The value to patients of nurses with a level of knowledge and skills sufficient to support compassionate care and provide them with a knowledge of their treatment that includes medication and potential side effects is also recognised.[4] In addition the responsibilities of nurses in many countries are increasing and provide patients with safe, timely and clinically effective care. [5,6] However, such improvements can only be achieved through the adequate education and training of the nursing workforce.

The nature of educational preparation for nurses working in Europe is varied. [7] The purpose of this heart failure nurse curriculum is to provide a blueprint for use in countries of the ESC to enable nurses caring for patients with heart failure to be 'fit for purpose'. Throughout this curriculum we have identified the knowledge and skills required for competent practice within each learning objective (table 1). We have used the term 'professionalism' to include the professional attitudes and behaviours that acknowledge the context in which care is delivered. Roles and responsibilities of nurses are covered by professional regulations. Therefore all learning objectives must be interpreted within the framework and legislation of the individual country. Completion of this curriculum does not guarantee accreditation or regulate entry to the role of heart failure specialist nurse. These must remain within the jurisdiction of each country. However we encourage individual countries to consider how this

curriculum can be used as a framework in the development of university accredited courses and local study days. We also encourage managers to consider locally how competence in the learning objectives can be used to ensure nurses are 'fit for practice'. Such competence can then provide a metric of high quality care to purchasers, commissioners and users of their services.

Overall aims of the curriculum:

1. To provide a knowledge of heart failure and its management to underpin clinical nursing skills
2. To support the development of expert clinical skills to undertake specialist heart failure nursing roles: in-hospital, out-patient, community, home or remotely
3. To provide the knowledge and skills necessary to function as an integral member of a multi-disciplinary heart failure team
4. To support the nurse to develop skills for life-long-learning
5. To practice within their scope of practice and regulatory framework

Teaching and learning methods:

This curriculum is intended for nurses who have undergone a period of cardiovascular education and clinical practice following their initial professional education. Therefore they will bring with them a diversity of knowledge. Teaching and learning approaches will build upon this foundation and learning opportunities will include a range of approaches that include face-to-face teaching, on-line learning, clinical practice and individual student-led learning.

The learner who wishes to complete the whole curriculum would be expected to achieve this within a period of 2 years (Figure 1). They would be expected to attend the organised symposia including those sessions identified during the annual scientific meeting, access specific on-line learning modules of the HFA of the ESC and listen to on-line lectures.

Assessment strategies:

The assessment strategies will enable the nurse to demonstrate a depth and breadth of learning as well as their ability to apply theoretical concepts to professional clinical practice. They will include: Knowledge based assessment (such as MCQ, short answer, case studies and presentation); Clinical Skills assessment (simulated clinical examination, reflective diary, clinical portfolio/log book); Professional skills assessment (testimonials, clinical practice).

Assessment should be undertaken by an experienced healthcare professional with appropriate competence. Different assessors can assess the student against aspects of each learning outcome.

Specific Learning Objectives:

Identify patients with suspected heart failure and have a critical awareness of triggers for clinical deterioration

Knowledge:

- Define heart failure using ESC criteria [1]
- Knowledge of the epidemiology and aetiology of heart failure in general and in the local area of clinical practice
- Describe the common causes, presentation and trajectory of heart failure.
- Understand that heart failure can develop as a consequence of the treatment of other illnesses or of other health conditions.
- Knowledge of the strengths and limitations of common diagnostic tests including intracardiac and pulmonary pressures

Skills:

- Monitor and document the presenting symptoms and signs using objective assessment tools where possible
- Undertake a focused clinical history and examination and identify probable causes and triggers for the symptoms and signs. Take a family history where appropriate.
- Explore with the patient their understanding of the cause of their symptoms
- Interpret and take action on simple diagnostic tests (to include ECG, chest XRay, echo, vital signs and heart failure biomarkers)

Professional behaviours:

- Recognise the importance of an accurate diagnosis as the basis for further investigation and treatment
- Recognise the impact of a heart failure diagnosis on the patient and their family
- Respect patient choice around prognostic information
- Work within scope of role, own limitations and refer appropriately to the multidisciplinary team

Assess and monitor common symptoms and signs using a variety of media including remote monitoring devices

Knowledge:

- Knowledge of the causes of common symptoms such as breathlessness, fatigue, ankle swelling and day-time sleepiness
- Detailed knowledge of the monitoring and follow-up necessary for optimal treatment and symptom management [8] (Table 2)
- Knowledge of the advantages and limitations of different methods of monitoring including face-to-face, remote with external equipment and remote using implantable devices.

Skills:

- Use objective monitoring tools (where possible) to monitor effectiveness and side effects of symptom management
- Accurately interpret and manage remote monitoring data and escalate appropriately to a more senior member of the heart failure team
- Gain patient acceptance of advanced healthcare technology and teach the patient and family how to effectively use remote monitoring equipment

Professional behaviours:

- Understand that patients interpret and express symptoms differently
- Recognise and respect cultural differences in the expression of symptoms
- Understand that a variety of factors affect individual attitudes to healthcare technology
- Understand the need to closely integrate monitoring data from implantable devices with heart failure management
- Appreciate that devices are being developed that monitor surrogate markers of heart failure severity

Apply educational theory to develop, implement and evaluate effective patient and family heart failure education

Knowledge:

- Compare and contrast relevant education theories that inform adult learning
- Define the term health literacy and have a critical awareness of its impact on learning

Skills:

- Use formal assessment tools to identify patient and family learning needs, cognitive functioning and health literacy
- Develop an individualised patient education plan that is timely, includes appropriate content and delivered using an appropriate format

Professional behaviours:

- Adopt an inclusive approach to patient education that includes communicating with the family and the multi-disciplinary team

Provide self-care and lifestyle advice (including diet, exercise and travel)

Knowledge:

- Knowledge of the key topics for effective self-care as outlined in the ESC heart failure guidelines [1]
- Knowledge of the common barriers and facilitators to effective self-care [9,10] (Table 3)
- Knowledge of strategies for self-care support including telehealth and remote monitoring
- Understand the physiological and clinical benefits of exercise in heart failure
- Detailed knowledge of advice on diet and fluid intake
- Knowledge of key safety issues related to travel

Skills:

- Provide individualised self-care support and advice to the patient and family
- Use appropriate language to discuss the rationale behind key self-care advice
- Undertake a formal assessment of key self-care barriers using validated assessment tools where possible (such as for assessment of cognitive function, anxiety, depression)

- Evaluate the effectiveness of self-care supportive interventions using objective assessment tools where possible (such as European Self-care Behaviour scale [11])
- Demonstrate use of Ratings of Perceived Exertion (RPE) scales with patients
- Provide individualised patient support for an exercise regimen (Table 4)
- Monitor and take action on continued and unexplained weight loss.

Professional behaviours:

- Recognise that the patient is central to self-monitoring of symptoms
- Recognise the impact of symptoms on self-care ability.
- Recognise the ethical issues of promoting life-style advice without a clear evidence base
- Appreciate the availability and usual practice of exercise training and/or cardiac rehabilitation in heart failure in home country
- Be aware of need to provide culturally sensitive information around diet and fluid intake
- Appreciate the country specific legislation regarding driving regulations

Manage the effective use of pharmacological and device therapies (including ICD, CRT) in collaboration with the patient and family

Knowledge:

Pharmacological

- Knowledge of the indications, contraindications, action and potential side effects of common drugs.
- Knowledge of the optimal dose of common heart failure medication and factors influencing individual susceptibility to side effects
- Knowledge of how patients develop their beliefs in their medication and how these beliefs influence adherence

Implantable CRT/ICD Devices

- Knowledge of the effective use of devices (including CRT and ICD), their actions and potential risk.

- Knowledge of the follow-up required for optimal device functioning

Respiratory Support

- Knowledge of the effective use of respiratory support (to include Oxygen therapy and CPAP), their side effects and contraindications. Be aware of the different devices available for delivering oxygen and ventilator support

Skills:

Pharmacological

- Record and take appropriate action on altered monitoring data (Table 2).
- Effectively discuss with the patient and family their medication, the action plan for optimising dose, medication side effects and important interactions with other medication, herbal remedies or foods
- Identify individual patient's potential barriers and facilitators to medication self-care and adapt information for self-management of medicines

Implantable CRT/ICD Devices

- Monitor for effectiveness and side effects/adverse events related to ICD/CRT function in immediate phase and longer-term
- Integrate monitoring for optimal device functioning with heart failure follow-up
- Provide education to the patient and family around specific therapies that includes a discussion of their actions, side effects, self-care actions and potential impact on daily life (to includes issues such as effects of electromagnetic fields, ICD shocks, infection)
- Identify changes in physical and emotional functioning resulting from ICD implantation. Take appropriate action to optimise quality of life.

Respiratory support

- Accurately and promptly administer oxygen and non-invasive respiratory support within scope of practice.
- Facilitate the effective use of such therapies including gaining patient acceptance

Professional behaviours:

Pharmacological

- Ensure prompt communication of medication and action plan to patients and care providers (such as primary care)
- Aware of individual patient factors affecting the optimal medication dose for maximum effect and that minimises risk.
- Work within the legislation for safe medication prescription and titration in country of practice
- Effectively communicate issues in medication self-care with the patient/family and ensure understanding
- Recognise and respect patient choice regarding their medicines management

Implantable CRT/ICD Devices

- Recognise the role of remote monitoring
- Recognise the potential effect on the patient and family of inappropriate shocks from IC Device
- Be aware of the regulations regarding fitness to drive in country of practice and recognise the potential impact of driving restrictions on the patient and family

Respiratory Support

- Liaise with appropriate community services to ensure ongoing use of oxygen and respiratory support following discharge home.

Competently and rapidly assess need and deliver care to the patient with acute heart failure

Knowledge:

- Knowledge of the different clinical manifestations of acute heart failure, their signs, symptoms
- Detailed knowledge of the common triggers and different trajectories
- Knowledge of pharmacological therapy specifically used in the management of acute heart failure [1]
- Have an understanding of the non-pharmacological treatment such as non-invasive and invasive ventilation, Intra-aortic balloon pump and ventricular assist device

Skills:

- Undertake a focused clinical history and examination to identify potential causes/triggers of acute heart failure
- Assess the severity of symptoms (using validated tools where appropriate)
- Monitor and interpret patient data, including vital signs, level of consciousness, serum electrolytes, ECG, Echo, Chest X ray and biomarkers.
- Safely monitor vital signs using invasive and non-invasive heamodynamic monitoring.
- Triage to appropriate level of care
- Safely administer medication in response to vital signs, blood chemistry and response to treatment
- Monitor and manage the care of the patient using non-invasive respiratory support

Professional behaviours:

- Appreciate the importance of including the patient and family need in the development of the management plan
- Coordinate the multi-professional team and arrange safe yet rapid transfer of the patient to the appropriate clinical setting

Identify the need for, co-ordinate and provide care at the end of life to the patient and their family

Knowledge:

- Knowledge of trajectory of heart failure and prognostic signs
- Knowledge of the pharmacological and non-pharmacological management of symptoms specific to end-of-life
- Understand the need for the active management of device therapy at the end of life
- Understand the specific need for psychological, social and spiritual support in palliative care

Skills:

- Respond honestly to patient and family questions about prognosis and refer to other professionals when appropriate

- Develop a management plan with the patient/family that includes preference for place of death
- Administer medication for symptom control and use objective assessment tools to monitor for symptom relief
- Formally assess emotional need and refer appropriately for specialist psychological, social and spiritual support
- Play a key role in discussions with the heart failure team, patient and /or family around ICD deactivation

Professional behaviours:

- Communicate management plan to all healthcare sectors and charitable organisations (where appropriate) including any decision around advance directives (including do not resuscitate orders) and preferred place of death.
- Be aware of local and country specific issues necessary to ensure smooth patient path
- Communicate effectively with specialists to provide psychological and spiritual care according to need

Heart failure nursing to special populations

Recognise the importance of comorbidity in heart failure and plan and deliver individualised patient care

Knowledge:

- Knowledge of the prevalence of common non cardiac comorbidities in general and in local area of practice (Table 5)
- Knowledge of the impact of common comorbidities and their management on HF management and outcome [12]
- Understand the challenges for diagnosis, clinical management and patient self-care
- Have an awareness of the increased risk associated with common heart failure medications in the presence of common comorbidites and their clinical presentation
- Have a detailed knowledge of signs and symptoms suggestive of altered mental status and their impact on disease management and self-care behaviour

Skills:

- Support the detection and management of comorbidities
- Undertake a comprehensive assessment of mental status using objective measurement tools.
- Explore the patient's interpretation of heart failure within the context of their overall health and use to inform their management plan
- Adapt the heart failure management program to provide care that takes account of differing comorbid conditions
- Identify changes in cognitive and physical functioning indicative of electrolyte disturbance or dehydration

Professional behaviours:

- Recognise the importance of patient centred integrated care of comorbidities within the specialist heart failure setting
- Be aware of altered medication prescribing practices in the presence of comorbidities.
- Understand the impact of comorbidities on how the patient understands heart failure and on their self-care behaviours.

Identify the need for and understand novel strategies in the management of advanced heart failure, such as mechanical circulatory support and heart transplantation

This module is for nurses who have completed the specialist modules and wish to provide and manage the care of patients with advanced end-stage heart failure. This module requires them to gain clinical practice in a specialist acute hospital with a heart transplant service.

Knowledge:

- Knowledge of indications and contraindications of heart transplantation
- An awareness of key drugs used specifically in managing adverse effects of transplantation
- Knowledge of MCS as destination therapy or bridge to transplant
- Have an awareness of current research into novel treatments for end-stage heart failure
- Have a detailed knowledge of the psychological impact of advanced heart failure treatments on the patient and family

Skills:

- Monitor and take appropriate action on signs and symptoms of rejection in the immediate post-operative period and over the longer term (arrhythmias, hypotension, fever, dyspnea, fatigue, palpitations or symptoms and signs of heart failure)
- Provide individualised patient and family education around the safety issues involved in living with a MCS or heart transplant
- Provide psychosocial support in the pre and post-operative period

Professional behaviours:

- Recognise the social and psychological impact of MCS or transplant assessment on the patient and their family
- Work collaboratively with and refer to specialists in the multi-professional team when necessary

Leadership in heart failure nursing

Lead and develop services in heart failure nursing

This module is intended for nurses who have completed all specialist modules and who wish to complete the heart failure nurse curriculum. They will be expected to work collaboratively with a research team which has national recognition in the field of heart failure. Completion of this module will require the nurse to undertake at least one audit or research project and to have disseminated their findings both nationally and internationally.

Knowledge:

- Knowledge of the key components of effective heart failure nursing service
- Discuss different methods of health services evaluation (including audit)
- Understand the key issues in quality improvement
- Have an awareness of different methods and measures for patient-centred outcomes that includes patient reported outcomes, patient experience and patient satisfaction and how to include these in research and quality improvement [13]

Skills:

- Contribute to the collection of data for national and /or international heart failure audit databases [14]
- Write a business case for the development of an effective multi-disciplinary heart failure team
- Select appropriate outcome measures including patient-centred outcomes for a defined patient population
- Design and undertake an audit

Professional behaviours:

- Recognise the roles of other members of MDT such as; doctor, cardiac physiologist, general practitioner, care of the elderly team, manager and the impact of any change in service delivery

Figure 1: Proposed education programme in heart failure nursing

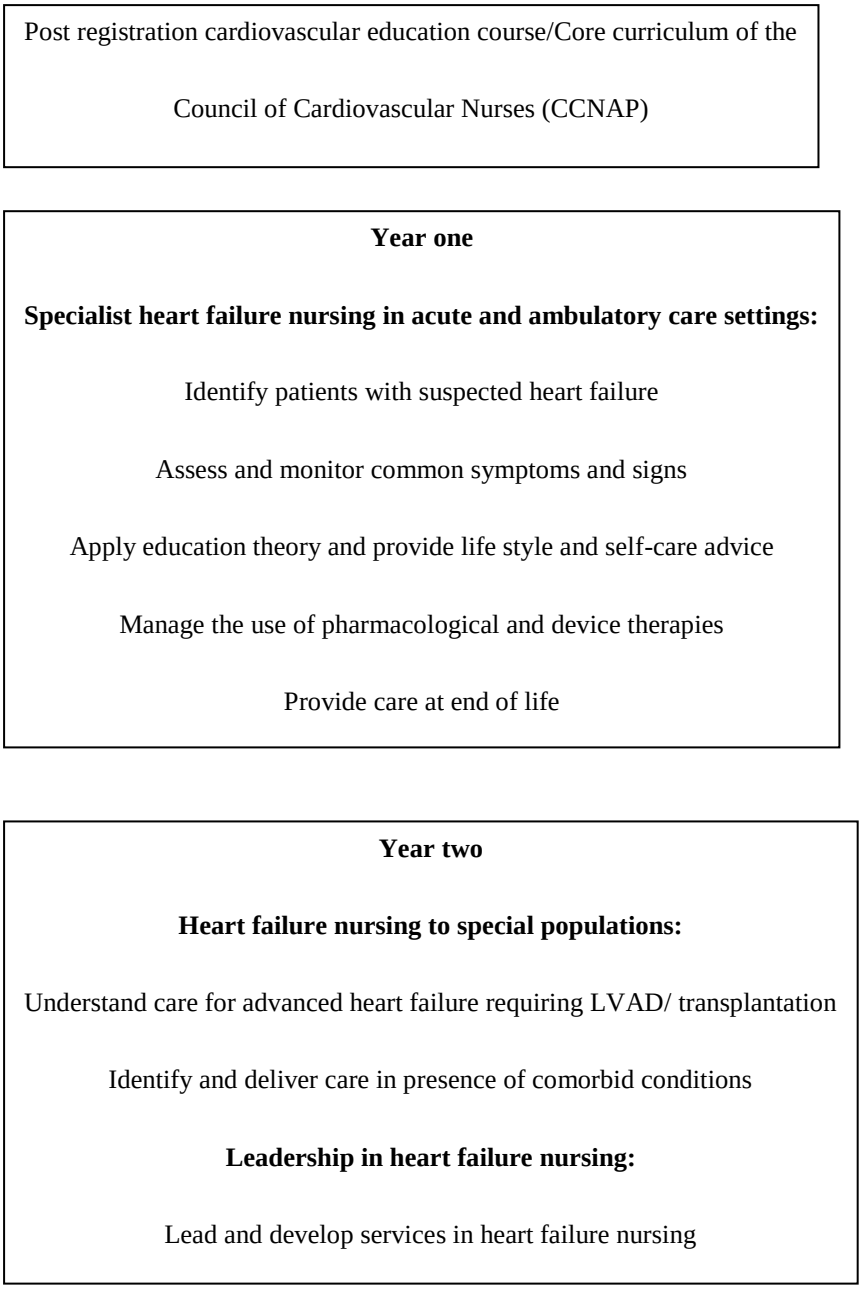

Table 1. Specific learning objectives of the heart failure nurse curriculum

Specialist heart failure nursing in acute and ambulatory care:

1. Identify patients with suspected heart failure and have a critical awareness of triggers for clinical deterioration
2. Assess and monitor common symptoms and signs using a variety of media including self-monitoring and remote monitoring devices
3. Apply educational theory to develop, implement and evaluate effective patient and family heart failure education
4. Provide self-care and lifestyle advice (including diet, fluid balance, exercise and travel)
5. Manage the effective use of pharmacological therapies and ICD, CRT in collaboration with the patient and family
6. Competently and rapidly assess need and deliver care to the patient with acute heart failure
7. Identify the need for, co-ordinate and provide care at the end of life to the patient and their family

Heart failure nursing to special populations:

8. Recognise the importance of comorbidity in heart failure and plan and deliver individualised patient care
9. Identify the need for and understand novel strategies in the management of advanced heart failure, such as ventricular assist devices and heart transplantation

Leadership in heart failure nursing:

10. Lead and develop services in heart failure nursing

Table 2: Monitoring for optimal treatment and symptom monitoring

Fluid status	Body weight Peripheral oedema Physical examination; Jugular venous distention, lung crackles, hepatomegaly Blood pressure; lying and standing
Functional capacity	Clinical and social history NYHA class Quality of life
Cardiac rhythm	Pulse 12-lead ECG
Cognitive/mental status	Cognitive function Objective monitoring of mental status in acute situation (AVPU)
Laboratory assessment	Serum biochemistry, Full blood count Heart failure biomarkers Anticoagulation, thyroid function, glucose
Medication	Drugs and doses Side effects

	Self-care
Device therapy	Device function (if appropriate)
Nutritional status	Review of weight Dietary intake (including alcohol)
Self-care ability	Knowledge and understanding Cognitive status Barriers to self-care Anxiety and depression

Table 3: Common barriers and facilitators to self-care

Symptom recognition or ambiguity
Past experience
Cognitive function
Anxiety and depression
Family caregiver support and knowledge
Integration with everyday routine
Financial

Table 4:Individualised support for adherence with exercise regimen

Practical support	
Psycho-educational approaches	Goal setting Problem solving Feedback Self-monitoring Identification of barriers Formation of intention
What do patients tell us?	
Systems approach	Involve all providers

Table 5. Common comorbidities (non-cardiac) to be included in the heart failure nurse curriculum

Chronic respiratory disease
Chronic kidney disease
Anaemia
Diabetes
Arthritis
Sleep disordered breathing
Erectile dysfunction
Cognitive impairment: mild, chronic and delirium
Anxiety and depression
Frailty

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