

A curriculum for heart failure nurses: an expert opinion of the Section of Nursing and Medical Technicians and the Heart Failure Working Group of the Polish Cardiac Society

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ABSTRACT

The rates of mortality and morbidity due to heart failure (HF) are expected to significantly rise over the next 10 years owing to an ageing population and will be the highest of all rates pertaining to cardiovascular diseases. To face this rapidly progressing problem, that is, the increasing prevalence of HF and need for care of patients with this disease, an attempt was made to develop a curriculum targeted at HF nurses. The HF nurse, as a member of the therapeutic team, has to play an active role in monitoring patients' physical and mental condition, coordinating hospital care, planning intervention after discharge from the hospital, and involving the patient and / or his or her family in self-care, effective cooperation, and communication with the therapeutic team. The curriculum was conceived to complement the knowledge of HF and improve HF nurses' educational skills. The proposed model of education, based on the guidelines of the European Society of Cardiology and led by trained educators, will enable clinicians to fully implement the principles of coordinated care and properly assess the effectiveness of educational interventions in patients with HF.

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Background Heart failure (HF) is a global health problem. Over the next 10 years, the incidence of HF is expected to show the highest dynamics among all cardiovascular diseases.^{1,2} In Poland, the number of patients with HF has reached nearly 750 000, which means that HF is the third most common cardiovascular disease affecting the Polish population. Heart failure is the most common cause of hospitalization

in individuals over 65 years of age.³ Frequent hospitalizations are caused by lack of organized outpatient care for patients with HF.^{4,5} Therefore, the need to optimize HF patient care poses one of the major challenges to modern cardiology. The introduction of optimal outpatient care based on cooperation between the cardiologist and other specialists, nurses, and primary care physicians should improve both the quality of

patient care and patients' quality of life.^{6,7} The ongoing active monitoring of patients with stable HF, provided by primary care physicians and nurses educating patients in self-care, should translate into better adherence, a lower number of cases of decompensated HF, and the resultant slowdown of disease progression.^{8,9}

In view of the steady increase in the number of patients with HF observed in recent years, the need to optimize HF therapy is growing. Therefore, the role of a nurse as a relevant link in the chain of care for patients with HF in both inpatient and outpatient settings should be emphasized.^{10,11} The HF nurse is a team member who plays a crucial and practical role in the objective monitoring of the patient's physical and mental state. The HF nurse participates in coordinating inpatient care, planning timely interventions after the patient's discharge from the hospital, and engaging the patient and / or his or her family in self-care, cooperation, and communication with the medical team in an effective way.^{5,12}

Rationale for the heart failure nurse educational program In Poland, care of patients with HF still requires targeted actions that will contribute to the identification and successful resolution of problems related to health and economic consequences in this patient population. The European Society of Cardiology (ESC) guidelines⁹ clearly indicate the obligation to implement the standard of care required by patients with HF. This will be possible only in collaboration with a qualified and competent medical team including HF nurses.¹³

Given the growing problem of high morbidity and mortality due to HF, which has reached epidemic proportions in recent years, an attempt was made to improve the existing situation by introducing a care system based on the concept of an active disease management system known as "Complex care for patients with heart failure

(KONS)."⁵ The coordinated care system is intended for patients with high-risk HF, ie, discharged after hospitalization due to disease exacerbation (decompensation), and established stable HF. The main objective of the KONS model is to increase the effectiveness of prevention and treatment of HF and to improve access to highly specialized and comprehensive care.⁵ The care program developed by the Polish Cardiac Society in collaboration with the Ministry of Health is characterized by comprehensiveness, universality, accessibility, functionality, and subjectivity. It is based on the systemic combination of interventional cardiology, electrotherapy, multidirectional outpatient care, optimized pharmacotherapy, and cardiac rehabilitation. Comprehensive and coordinated care for patients with HF is expected to contribute to improved outcomes in terms of reduced absenteeism and readmissions, prolonged survival, enhanced functionality, improved quality of life, and a reasonable reduction of indirect costs.

The aim of the program is also to provide HF nurses with expertise and practical training to ensure the highest standards of care based on the ESC guidelines on the management of patients with HF.⁹

Principles of the heart failure nurse curriculum The HF nurse educational program will be one of the key elements in the process of ensuring effective, coordinated care for patients with HF. The program includes the core module (C), the specialist module (S), and the leadership module (L) (TABLE 1). The core module is intended for all HF nurses. The specialist module (advanced care of patients with HF, including mechanical circulatory support in acute and chronic HF and heart transplantation) is addressed to nurses caring for patients with HF at specialist centers. The leadership module is targeted at team leaders or coordinating nurses who will additionally develop skills related to management and

TABLE 1 Learning objectives of the heart failure nurse educational program: core, specialist, and leadership modules

1. Identifying patients with suspected HF and providing the ability to recognize triggers for clinical deterioration in patients with HF (C, S)
2. Educating patients and their caregivers and / or family members and systematically assessing the effectiveness of the educational activities (C, S)
3. Involving the patient and / or his or her family in self-care (adherence and lifestyle changes) (C, S)
4. Managing optimal communication with the patient (C, S)
5. Monitoring and assessing the signs and symptoms of HF (C, S)
6. Effectively monitoring and managing therapies (pharmacotherapy, implantable devices) (C, S)
7. Competently and rapidly assessing the signs and symptoms of HF decompensation and providing comprehensive care to the patient with HF (C, S)
8. Identifying problems and optimizing palliative care of the patient with HF (C, S)
9. Personalizing care for patients with HF and multimorbidity (C, S)
10. Planning and coordinating outpatient care after discharge from the hospital (C, S)
11. Raising awareness of and focusing on novel treatment strategies (S)
12. Providing advanced specialist HF care (S)
13. Organizing and preparing leadership and coordinating teams for HF nursing care (L)

Abbreviations: C, core module; HF, heart failure; L, leadership module; S, specialist module

preparation and education of new members of the HF nurse program.

General aims of the program In general, the educational program targeted at HF nurses aims to:

- support the care of patients with HF provided by a trained HF nurse, based on in-hospital education, self-care preparation, and outpatient telemonitoring, in order to reduce the number of hospitalizations due to decompensated HF and improve patients' quality of life
- provide knowledge on the nature of the disease and the options for disease management to support the competencies of the HF nurse
- support the development of specialist clinical skills in fulfilling the role of the HF nurse
- provide the HF nurse with the necessary knowledge and skills to act as a rightful member of the multidisciplinary team
- provide education to patients with HF by HF nurses in accordance with the ESC guidelines
- support nurses in continuing their education
- prepare nurses to take leadership roles

Specific aims of the program The program aims to improve the identification of patients with suspected HF and/or provide knowledge on multifactorial mechanisms underlying clinical deterioration.

In terms of specific objectives, excellence in knowledge, skills, and competencies is pursued.

Specific learning objectives regarding knowledge

In terms of knowledge, the HF nurse should:

- understand the essence and know the definition of HF provided in the current ESC guidelines
- know the epidemiological indicators and the etiology of HF
- know the causes, signs, symptoms, and trajectory of HF
- know the consequences of HF and understand the relationship between HF and comorbidities
- know the indications for the necessary diagnostic workup to diagnose and monitor the course of HF
- understand the goals of specialist therapy in patients with HF and know indications for and contraindications to inserting implantable devices and performing percutaneous or surgical interventions
- know how to communicate with patients with HF and educate them and understand how to monitor the patient's condition

Specific learning objectives regarding skills

In terms of skills, the HF nurse should be able to:

- monitor the course of HF in terms of the patient's adherence and document changes in the clinical signs of HF using objective assessment tools

- collect a relevant clinical history and perform a physical examination to identify the causes and factors affecting the signs and symptoms of HF
- interpret the results of basic diagnostic tests (vital signs, electrocardiography [ECG], chest X-ray, echocardiography, and HF biomarkers)
- participate in pharmacotherapy optimization
- recognize any psychosocial changes related to the course and duration of HF and specialist therapy used and take actions aimed at improving the patient's quality of life
- assess the level of patient knowledge about the nature of the disease, its signs, symptoms, and consequences
- independently organize, plan, and conduct multidirectional education on lifestyle modification and increased self-care and self-control required in patients with HF
- collaborate with the patient's family to achieve the goals of HF care and treatment and carry out educational activities
- plan outpatient care and prepare the patient for post-discharge care, including adhering to the follow-up appointment schedule
- perform a detailed analysis of the quality of care targeted at patients with HF

Specific learning objectives regarding competencies

In terms of competencies, the HF nurse should be prepared to:

- independently establish an accurate diagnosis as a basis for targeted educational interventions
- assess the patient's psychosocial state and its impact on the functioning of the patient with HF and his or her family
- carry out a comprehensive assessment of the patient's needs and respect the patient's preferences in accordance with patient rights and ethics standards
- respect the dignity and autonomy of the patient with HF and express understanding and empathy in the relationship with the patient and/or his or her family
- critically assess their own limitations with regard to knowledge, skills, and competencies and continuously improve performance in specialist care of patients with HF
- liaise with medical team members when providing comprehensive care to patients with HF and obtain the opinion of other experts in the event of any disputes occurring in the course of problem solving
- bear the responsibility for proper planning, task performance, and managing the HF nurse team

The specific aims of the program, based on the 2016 ESC guidelines on the diagnosis and treatment of acute and chronic HF,⁹ are presented in TABLE 2.

TABLE 2 Specific learning objectives of the heart failure nurse educational program: knowledge, skills, and competencies (continued on the next page)

Knowledge	Skills	Competencies	
Definition, epidemiology, and course of HF	<ul style="list-style-type: none"> • Definition of HF according to the ESC criteria • Causes and course of HF • Relationship between HF and comorbidities • A broad panel of diagnostic tests 	<ul style="list-style-type: none"> • Monitoring and documenting patients' status using appropriate tools • Taking a thorough clinical history and performing a physical examination • Performing a 6-minute walk test • Educating the patient on the nature of HF • Interpreting the results of basic diagnostic tests (ECG, chest X-ray, echocardiography, HF biomarkers, and vital signs) 	<ul style="list-style-type: none"> • Being able to establish the right diagnosis to perform further nursing interventions • Assessing impact of HF on the biopsychosocial functioning of the patient and / or his or her family • Respecting patients' preferences in accordance with professional ethics • Cooperating with other professionals as a member of the medical team
Signs and symptoms of HF and self-monitoring	<ul style="list-style-type: none"> • Signs and symptoms of HF • Close monitoring of normal laboratory test results • Various methods of clinical monitoring (monitoring during hospitalization, telemonitoring, and remote monitoring of implantable devices) 	<ul style="list-style-type: none"> • Using objective tools to monitor the signs and symptoms of HF • Interpreting data, implementing interventions, and / or transferring data to an experienced HF team member • Obtaining patient consent and educating the patient about the opportunities and areas of application of advanced monitoring technology 	<ul style="list-style-type: none"> • Understanding the fact that the course, severity, and manifestation of signs and symptoms differ among individuals • Understanding the importance and compatibility of implantable device monitoring in the assessment of signs and symptoms of HF
Education and recommendations on patient self-care	<ul style="list-style-type: none"> • Methods and ways of implementation, assessment of the effectiveness of patient and / or his or her family education • Key elements that improve or negatively impact effective self-care • Self-care strategies (telemonitoring, remote monitoring through implantable devices) • Clinical and psychophysical benefits of physical activity, diet optimization, and fluid intake • Key safety issues related to travelling • The negative impact of smoking • Improving sexual function • The key role of immunization 	<ul style="list-style-type: none"> • Identifying and assessing barriers to education using screening tools (assessment of cognitive function, anxiety, and depression) • Providing individualized behavioral therapy • Providing self-care support • Assessing the effectiveness of educational interventions • Being able to use the www.slabeserce.pl website and the "Heart failure patient passport" in the education process 	<ul style="list-style-type: none"> • Understanding the comprehensive approach to education based on communication between the patient and / or his or her family and a multidisciplinary team • Appreciating the importance of the active participation of the patient and / or his or her family in the treatment process • Recognizing the impact of the worsening symptoms of HF on self-care
Specialist treatment (pharmacotherapy, implantable devices, percutaneous or surgical interventions)	<ul style="list-style-type: none"> • Indications, contraindications, actions, and side effects related to the pharmacotherapy used • The optimal dose of medications for HF and factors affecting individual responses to medications • Factors affecting therapy adherence • The effective use of implantable devices (ICDs and CRT), their function, and potential risks • Remote monitoring optimization • Options and methods of effective circulatory support, their adverse effects, and related contraindications 	<ul style="list-style-type: none"> • Monitoring and modifying the use of (selected) medications • Discussing with the patient the effects of medicines, dose optimization plan, adverse effects, and interactions with other drugs, herbal products, and foods • Identifying risk factors for low adherence and implementing interventions to improve self-care regarding pharmacotherapy • Monitoring the effectiveness and adverse effects of implantable devices • Providing the integrated monitoring of remote monitoring data and the course of HF • Providing education on the proposed therapies • Identifying psychophysical changes related to ICD implantation and taking appropriate actions to improve patients' quality of life • Using and monitoring circulatory support effectively 	<ul style="list-style-type: none"> • Providing comprehensive information on the treatment plan and the pharmacotherapy used to both the patient and primary healthcare professionals • Recognizing that pharmacotherapy optimization depends on individual factors affecting the clinical status • Recognizing patients' needs and preferences with respect to pharmacotherapy • Appreciating the importance and role of remote monitoring through implantable devices • Appreciating the role of psychological support in patients with implantable devices (prevention of potential adverse effects, such as electrical storm) • Providing social support after hospital discharge

TABLE 2 Specific learning objectives of the heart failure nurse educational program: knowledge, skills, and competencies (continued from the previous page)

	Knowledge	Skills	Competencies
Specialist care in HF exacerbation	<ul style="list-style-type: none"> Diverse clinical manifestations of HF exacerbation, its signs and symptoms Common triggers and different trajectories of HF exacerbation Pharmacotherapy used in HF decompensation Various mechanical therapies to support the treatment of decompensated HF 	<ul style="list-style-type: none"> Taking a focused clinical history and performing a physical examination to identify the causes of decompensated HF Assessing the severity of signs and symptoms of decompensated HF Monitoring and interpreting patients' vital signs, consciousness level, laboratory findings (electrolytes and biomarkers), ECG, and chest X-ray Implementing appropriate nursing care Using safe pharmacotherapy, considering the reaction and clinical response Monitoring and providing nursing care to the patient receiving specialist therapy 	<ul style="list-style-type: none"> Appreciating the importance and role of specialist care in HF exacerbation Ensuring safe and rapid transfer to an appropriate referral center
Outpatient care	<ul style="list-style-type: none"> Rules for planning and coordination of outpatient care after hospital discharge Individualized treatment plans and the role of the cardiologist and the primary healthcare physician in the HF treatment process 	<ul style="list-style-type: none"> Monitoring the course of HF and identifying psychophysical factors affecting the clinical status of patients with HF Motivating and educating patients to actively participate in self-control and self-care processes Modifying therapy ensuring flexible dosage and drug tolerability 	<ul style="list-style-type: none"> Appreciating the importance of primary and specialist care in HF management optimization Ensuring continuity of the care plan, considering the essential role of primary healthcare
Palliative care	<ul style="list-style-type: none"> The course and prognosis of HF Nonpharmacological and pharmacological treatment in palliative care of patients with HF Benefits of biopsychosocial support in palliative care 	<ul style="list-style-type: none"> Responding to questions on the course and prognosis of HF Developing a care plan according to the patient's preferences Using pharmacotherapy with the simultaneous assessment of reduction in the occurrence of adverse effects or their worsening Assessing the patient's mental state to provide appropriate specialist support (psychological, social, and spiritual) 	<ul style="list-style-type: none"> Ensuring a continuous care plan at all levels of healthcare (including primary and palliative care) Maintaining multilevel communication and collaboration between specialists to ensure comprehensive care Recognizing expert opinions regarding the deactivation of implantable devices
Comorbidities	<ul style="list-style-type: none"> Comorbidities and their potential impact on the course and prognosis of HF Interactions between pharmacotherapies for HF and comorbidities The need to individualize therapy and improve self-care in patients with HF and multimorbidity 	<ul style="list-style-type: none"> Performing a comprehensive assessment of patients' comorbidities, frailty syndrome, cognitive function, and emotional state using objective measurement tools Identifying patients with a negative impact on cognitive and physical function 	<ul style="list-style-type: none"> Appreciating the role of multilevel specialized care for patients with HF and comorbidities Recognizing the intensity of the patient's problems in self-care regarding HF and multimorbidity
Novel strategies	<ul style="list-style-type: none"> Indications for and contraindications to heart transplant Key drugs used after heart transplant Recent studies and HF treatment modalities related to end-stage HF The psychological impact of advanced treatment modalities on the patient's condition and / or on his or her family 	<ul style="list-style-type: none"> Monitoring and undertaking appropriate interventions to reduce the risk of transplant rejection (in the postoperative period and in long-term follow-up) Providing individualized education on safe living after receiving heart transplant Providing psychosocial support in the pre- and postoperative period 	<ul style="list-style-type: none"> Recognizing the importance of holistic care for the patient in preparation for and after heart transplant Appreciating changes in the patient's psychosocial state Continuous collaboration in the multidisciplinary team
Leadership teams	<ul style="list-style-type: none"> Key components of effective HF nursing care Diverse methods and healthcare services Care management and care quality improvement Monitoring and assessment of services using different methods of patient satisfaction evaluation 	<ul style="list-style-type: none"> Collecting data in national and / or international HF registries Taking actions aimed at improving the quality of care in individuals with HF Designing and conducting audits to maintain high-quality care 	<ul style="list-style-type: none"> Recognizing the roles of other members of the multidisciplinary HF team (primary care physician, cardiologist, geriatrician, dietitian, psychologist, and physical therapist) and their impact on changes in healthcare provision

Abbreviations: CRT, cardiac resynchronization therapy; ECG, electrocardiography; ESC, European Society of Cardiology; ICDs, implantable cardioverter-defibrillators; others, see TABLE 1

Summary The HF nurse curriculum was developed on the basis of the ESC guidelines on the diagnosis and treatment of acute and chronic HF⁹ and the educational framework developed by the Heart Failure Association of the ESC, considering the Polish local specificities and circumstances and the objectives of the KONS program.^{5,14,15} The implementation of targeted education aims to improve the ability of patients with HF to self-care and self-monitor. Comprehensive, multidisciplinary care may translate into a significant reduction in the number of rehospitalizations due to HF and/or general causes, reduced mortality, and improved quality of life in this patient population. Multidirectional interventions are obligatory owing to the escalating problem of HF in Poland. The proposed educational model is complementary to the KONS model, which will enable the implementation of substantive systemic solutions regarding the competencies of HF nurses and patient education into real-world clinical practice.

A pilot educational program entitled *The Weak Heart*, intended for patients with HF and operated by qualified HF nurses, is currently being implemented in Poland under the patronage of the Heart Failure Working Group and the Section of Nursing and Medical Technicians of the Polish Cardiac Society. The program was funded by Novartis.¹⁶

SUPPLEMENTARY MATERIAL

The Polish version of the paper is available at www.mp.pl/kardiologiapolka.

ARTICLE INFORMATION

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CONFLICT OF INTEREST JK is a Novartis employee. Other authors declare no conflict of interest.

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