Physician Education and Training in Palliative Care: A New Challenge in Modern Cardiac Intensive Care

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14.1 Introduction: The Modern Cardiac Intensive Care Unit

After its introduction into the framework for medical care in the 1960s, the coronary care unit (CCU) spread rapidly throughout the country and became established within contemporary healthcare systems as a validated means for improving outcomes for patients with acute myocardial infarction (MI) [1]. Today's CCU, however, looks very different from these pioneer units, and instead is home to an increasingly diverse population of patients with advanced critical illness, complicating a multitude of cardiovascular conditions. To reflect the fact that these units are

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truly home to complex critically ill patients, many have adopted a new moniker for these care environments: the cardiac intensive care unit (CICU). Patients that occupy the modern CICU have more comorbidities and greater illness severity and leverage more critical care resources than ever before. Those with acute MI are now often the minority, replaced instead by patients with all forms of shock, multisystem organ failure, electrical storm, valvular emergencies, end-stage heart failure, and other unstable clinical conditions. An increasing population of CICU patients require life-support modalities typically only available in an intensive care setting, including vasopressors, inotropic agents, invasive mechanical ventilation, and continuous renal replacement therapies. Additionally, the use of mechanical circulatory support (MCS) technologies—including intra-aortic balloon pumps, temporary axial and centrifugal flow pumps, surgically implanted left ventricular assist devices (LVADs), and extracorporeal membrane oxygenation (ECMO)—has become commonplace [2]. A growing body of evidence has now substantiated the notion that patients within the modern CICU are sicker and at greater risk for mortality than ever before [3]. The epidemiology and patterns of care in the modern CICUs are discussed in detail in Chap. 1.

The majority of high-volume CICUs can be found within academic or university-based hospitals, and therefore are teaching environments for learners at multiple levels of training including medical students, residents, and fellows. Though walking a patient and family through difficult prognosis, adjustment to new therapies, symptom management, and end-of-life care is the commonplace for CICU providers, there is currently no formal curriculum for palliative care in internal medicine or cardiology training. Rather than relying on palliative care consultation services at the end of life, primary palliative care should be considered for all patients managed in a CICU and/or receiving life-prolonging therapy. However, the question remains as to what to teach and how to best teach it. This chapter discusses the challenge of cardiac intensive care physician education and training in palliative care. Though more research is needed in order to figure out how best to implement primary palliative care education for providers in the CICU, this chapter identifies major tenants of primary palliative care, learning objectives for practicing primary palliative care, and teaching modalities which will best serve these learning objectives.

14.2 Palliative Care in the CICU

Palliative care is a specialty that focuses on the quality of life, relief of suffering, psychosocial and spiritual needs, and alignment of treatments with care goals for patients with serious illness [4]. As the patient population in the CICU has evolved, palliative care has become increasingly relevant due to the severity and complexity of conditions managed in these units. Of note, patients with cardiovascular disease represent the largest disease group in need of palliative care at the end of life [5]. Given the high mortality of heart failure patients (40% die within 1 year of their first hospitalization) and the recommendation of several societies, including the American College of Cardiology, the American Heart Association, the International

Society for Heart and Lung Transplantation, and the Heart Failure Society of America, many programs have integrated palliative care into their management of advanced heart failure patients, and particularly those supported by LVADs [6]. Furthermore, the Centers for Medicare and Medicaid Services and the Joint Commission require that a palliative care specialist be a part of the core multidisciplinary MCS team [7]. Several organizations such as the Heart Failure Working Group of the Danish Society of Cardiology and the Heart Failure Association of the European Society of Cardiology have published position statements on palliative care in the heart failure patient population that include advocacy for early intervention, clarification of the role of palliative care, and guidelines for conversations about device deactivation [8]. The American Heart Association and the American Stroke Association put forth a joint statement in 2016 that describes the benefits of palliative care and emphasizes the importance of both primary palliative care performed by the cardiac interdisciplinary team and access to specialty palliative care [9]. One systematic review and meta-analysis suggested that palliative care is associated with improved quality of life and reduced symptom burden [10]. In the Palliative Care in Heart Failure trial (2017) the palliative care intervention arm (usual care plus a 6-month interdisciplinary palliative care intervention) was associated with clinically significant improvements in quality of life as well as improvements in mood (anxiety and depression) and spiritual well-being, compared to usual care alone [11]. Palliative care has also been shown to be beneficial in intensive care settings. For example, early involvement of palliative care leads to earlier family meetings and decreased hospital length of stay [12]. Involvement of palliative care also improves alignment of treatment decisions with patient's values and preferences [13]. Combining this evidence supports that the tenants of palliative care should be familiar to the physicians offering and managing advanced cardiac care.

14.3 Primary and Specialty Palliative Care in the CICU

Palliative care can be provided through several paradigms. The first, often termed "primary palliative care," refers to the delivery of palliative care by the treating team caring for the patient [14]. In the CICU environment, this would generally be the CICU intensivists. Primary palliative care is defined as the provision of basic palliative care components by clinicians who are not formally trained in specialty palliative care (of note, this can include physicians, advanced practice providers, nurses, social workers, and other interdisciplinary team members). There is no research to guide the optimal approach to integrating primary palliative care in subspecialty practices, so there remains individual variability in incorporation [15]. There are a number of skills that could be included in training clinicians in primary palliative care. In a recent publication by an embedded palliative care service in a tertiary care heart failure center, symptom management and care planning were the two most common reasons for referral. The most common symptoms managed were pain, anorexia, insomnia, depression, and anxiety, and opioids were the most commonly prescribed medication. Shared care planning, code status, and hospice were the

most commonly discussed care planning topics [16]. Other topics that may be relevant to primary palliative skills within cardiology include discussions regarding the use of advanced cardiac therapies such as chronic inotropes, mechanical ventilation, implantable cardioverter-defibrillators (ICDs), pacemakers, MCS, therapeutic hypothermia, and cardiac transplantation. Although recognized as important to their patient population, only 10% of cardiologists in one survey reported formal education in palliative care during their cardiovascular training [17].

Alternatively, "specialty" palliative care can be performed by a separate multidisciplinary team which generally includes a provider with advanced training and certification in Hospice and Palliative Medicine as well as experts in fields such as social work and chaplaincy. Because the availability of formally trained palliative care providers is limited, the introduction of palliative care concepts and the promotion of primary palliative care skill sets for CICU team members are vital. As the majority of high-volume CICUs are located within academic or university-based hospital systems, access to specialty palliative care is often available although it cannot be assumed. However, the ability of CICU intensivists to provide primary palliative care as exemplified by familiarity with the basic principles of palliative care is important for several reasons. Specialty palliative care is a limited resource and may be challenging to access acutely. Furthermore, palliative care is relevant to so many aspects of patient care in the CICU, as the life-sustaining technologies employed in the CICU often have significant implications for quality of life, healthcare decision-making, and end-of-life care. Therefore, it is ideal to integrate these skills into basic practice. As such, there is an opportunity to enhance knowledge and skills in experienced CICU clinicians by considering their work through the lens of palliative care.

14.4 Physician Education and Training

Primary palliative care education is not yet compulsory in undergraduate medical education or graduate medical education and therefore varies widely across institutions. In a review of the scope of training in medical residencies and fellowships, primary palliative care teaching emphasized communication and symptom management topics with instruction via didactics. Most of the time, the assessed outcome was attitude. Internal medicine was among one of the residencies most represented, but cardiology fellowship or heart failure fellowship programs were not. In a review of internal medicine residency programs, the most common domains studied included communication, symptom management, end of life, psychological support, transition of care or resources, ethics, and bereavement. The most common methods of teaching included didactics or lectures, discussion, rotations, workshops or retreats, simulation/role play, standardized patients, independent learning, and Web-based learning. Residents were measured on outcomes such as subjective knowledge, objective knowledge, attitudes, and observation of skills. Most residency and fellowship programs that were included in a recent survey reported little to no directed palliative care didactics and training. For example, cardiology

fellowship had none [18]. Objectives of physician education and training in palliative care include provider understanding the clinical indications of therapies unique to the CICU, followed by mastering primary palliative care skills such as communication, decision-making, and symptom management. Teaching modalities that best serve this mission include bedside teaching, case-based teaching, and didactics.

14.5 Primary Palliative Care Learning Objectives

The Accreditation Counsel for Graduate Medical Education (ACGME) and the American College of Cardiology (ACC) have set forth training requirements which include palliative care for those pursuing fellowships in cardiology and advanced heart failure. Despite these recommendations one group of researchers surveyed cardiology fellows and found that although 71% reported clinical collaboration with palliative care specialists during training, less than 10% had received formal education in palliative care topics [19]. Therefore, physicians who practice in the CICU setting are often not expert in providing palliative care [20]. On the contrary, fellowships in palliative care medicine provide extensive training over the course of 1 year, with a focus on skills for enhancing patient quality of life, reducing symptom burden related to severe illness, and supporting patients and their loved ones through the dying process [21]. Many areas of palliative care training are applicable to the care of patients in the CICU and can guide the objectives for learning primary palliative care in the CICU (Table 14.1). This section has broken down primary palliative care learning objectives into three main categories: communication, decision-making, and symptom management.

14.6 Communication

Patients in the CICU are critically ill, medically complex, and often near the end of their life. Therefore, clear and empathetic communication is vital, and effective communication should be taught to all providers caring for patients in the CICU.

Communication skills important early on in a patient encounter include displaying empathy, building relationships and trust with a patient and/or their proxies, and setting expectations. It is important for a provider to develop a relationship with a patient/family at the beginning of the CICU admission, rather than waiting for the goals of care discussion at a time of patient decompensation or high stress. As a patient progresses and prognosis becomes more clear, CICU providers must have skills to translate complicated diagnoses, treatment plans, and prognoses to patients and proxies in an individualized way such that it is understandable to the recipient. As a patient's primary provider, they must also be able to organize and summarize recommendations made by consultants and other members of the multidisciplinary CICU team. Practicing of specific skills, such as "breaking bad news" and "leading goals of care discussions," will be vital in a provider's comfort and proficiency in CICU communication. When discussing goals of care, it is imperative that the

Table 14.1 Primary palliative care learning objectives for cardiac intensive care unit providers

Communication Provider must be proficient in effective communication	**Decision-making** Provider must be skilled in decision-making		**Symptom management** Provider must be able to relieve suffering, both physical and emotional
Displaying empathy	**Prognostication** Clinical judgement	**Shared decision-making** Patient and family-centered decision-making	Pain assessment and management
Relationship and trust building	Effective application of life-sustaining therapy	Taking part in active shared decision-making	Dyspnea assessment and management
Expectation setting	Making recommendations in the face of uncertainty	Eliciting patient values and preferences	Delirium assessment and management
Translation of complex medical diagnosis, treatment plan, and prognosis	Understanding limitations of life-sustaining therapy	Balancing benefit and burden of treatment options	Sleep disturbance assessment and management
Summarize recommendations of consultants	Withholding potentially inappropriate therapy	Respect diversity in attitude, religion, and culture	Anxiety and depression assessment and management
Breaking bad news	Transitioning goals of care	Capacity assessment	Comfort in transitioning from full support to comfort care, including withdrawal of life-sustaining therapy
Leading goals-of-care discussions	Recognizing patients who may benefit from hospice referral	Advance care planning	Ability to emotionally and practically support family or other caregivers through bereavement
Eliciting patient values and preferences		Guiding surrogate through decision-making using substituted judgment	Understanding when to refer to specialty palliative care
Managing requests for potentially inappropriate therapy			
Comforting the bereaved			

[20, 32, 33, 6, 34]

provider is comfortable eliciting the values and preferences of the patient; engaging in discussions regarding spirituality, religion, and cultural expectations; and managing requests for potentially inappropriate therapy. Finally, communication around death and dying, including comforting for the bereaved, is an important skill. These communication skills are crucial for guiding patients and/or their proxies through the decision-making process.

14.7 Decision-Making

Complex decisions must be made in the CICU setting, often in the face of uncertainty, which first requires the beneficent provider to have expert clinical and prognostic judgment. Then, in order to best uphold a patient's autonomy, providers must be prepared to practice shared decision-making.

Critical care practice requires the ability to deftly navigate between highly specialized recovery-directed care and recognition of the limits of this care, to then empathetically facilitate a transition to care focused on comfort. Vital to this is gaining skills in prognostication. Accurate prognostication allows for effective application of life-sustaining therapies such as MCS, vasopressors, inotropes, ventilator, and continuous veno-venous hemodialysis, so that it is in-line with goals of care and will serve the expected outcome. When this is not possible, the provider should be prepared to make recommendations in the face of uncertainty. Though recovery is a primary goal, understanding the limitations of life-sustaining therapy is of the utmost importance. CICU providers must understand not only clinical indications, but also the limitations of intensive therapies, and when to withhold potentially inappropriate and/or life-sustaining therapies while instead guiding families through the dying process. It is important for CICU providers to identify patients who may qualify for and benefit from hospice.

14.8 Therapies and Interventions Unique to CICU

First, it will be important for trainees to understand clinical indications related to life-sustaining therapies and CICU care such as MCS, vasopressors, inotropes, ventilator, and dialysis. They will need to be expert in prognostication. Thoroughly grasping the clinical indications for particular treatments is the first step in being able to counsel patients/proxies as to whether the therapy will serve the goals of care. Understanding the limitations of these therapies will aid in avoiding potentially inappropriate interventions. Advanced therapies used in the CICU are discussed in detail in Chap. 2. Furthermore limitations to advanced therapies, including deactivation of implanted cardiac devices, and withholding and withdrawal of life-sustaining therapy, are discussed in Chaps. 6, 7, 8, and 10.

14.9 Shared Decision-Making

Shared decision-making is imperative in applying the above therapies to care in the CICU. Shared decision-making is the way by which providers and patients make healthcare decisions that best align with the patient's wishes and respect their autonomy. In this construct the provider must first elicit the patient's values and preferences, and then use their medical judgement to balance benefits and burdens of a particular plan of care and advise which treatment plan is most likely to achieve the patient's desired goals. Shared decision-making and advanced directives are discussed in detail in Chap. 5.

14.10 Symptom Management

Evaluating and managing symptoms are core aspects of both primary and specialty palliative care. Patients with inadequately managed symptoms (including pain or dyspnea) cannot be expected to benefit from other elements of palliative care such as participation in conversations directed at healthcare decision-making. As such, an important step in providing palliative care is to assess for symptoms. As previously mentioned, acute or decompensated heart failure is a common reason for admission to the CICU. Similar to other advanced disease states and the failure of other organs, patients with heart failure may experience a range of symptoms including dyspnea, fatigue, pain, loss of appetite, insomnia, and cough [22]. Psychiatric and cognitive dysfunction including delirium is also common [23]. The trajectory of decline in cardiac failure is notable for its lack of predictability and is characterized by sudden decompensations followed by periods of remission [24]. During these decompensations, providers practicing in the CICU should be prepared to address symptoms such as pain, dyspnea, fatigue, and delirium. A detailed review related to evaluation and management of symptoms is provided in Chap. 3 of this text, and should be used as a resource for education.

14.11 Teaching Modalities

Common clinical teaching methods are listed in Table 14.2 and include bedside teaching, didactics, and case-based teaching. Whenever possible, the teaching of primary palliative care in the CICU should be taught by a palliative care physician or a critical care physician comfortable with palliative care and CICU care.

14.12 Bedside Teaching

Bedside teaching is a core tenant of medical education. It can be an effective mode of teaching communication through role-modeling, decision-making through mentorship, and symptom management via experience with bedside cases.

Table 14.2 Methods of teaching

Bedside		Didactics		Case based	
Teaching method	Goals	Teaching method	Goals	Teaching method	Goals
Role-modeling	Learner participates in goals-of-care discussions, family meetings, and sessions in which shared decision-making will occur, and learns communication skills via observation of expert	Lecture	Learner is introduced to topics that will be encountered during bedside management of patients and has the opportunity to ask questions and seek clarification in order to grow their fund of knowledge	Case review	Learner reviews a case allowing time for discussion of and reasoning through plan of care and communication strategies
Mentorship	Learner leads goals-of-care discussions, family meetings, and sessions in which shared decision-making will occur, and gets feedback on communication skills Learner receives feedback on plan of care and symptom management strategies	Targeted reading/ journal club	Learner reviews literature that will guide evidence-based practice and grow their fund of knowledge	Simulation	Learner is able to practice communication skills
Palliative care rotation	Learner gains experience in primary palliative care via exposure to a larger number of patients with end-of-life and/or symptom management needs				

[29, 31]

Role-modeling and mentorship are important factors, especially for resident and fellow learning. Most CICU physicians will not go on to receive specialized training in hospice and palliative medicine; therefore, improvement of primary palliative care skills often depends on the accumulation of personal experience and observation of successful strategies demonstrated by other providers. Attending physicians should role model communication by allowing learners to take part in goals of care discussions, breaking bad news, and shared decision-making, and then be prepared to mentor learners via giving guidance, support, and feedback. For example, following the timeless "see one, do one, teach one" model of medicine, learners should have opportunities to witness well-executed primary palliative care by an experienced provider. They should then practice leading the delivery of that care, and/or goals of care discussions with opportunities for feedback. Finally, when proficient in skill and comfort, learners should teach primary palliative care to others. Learners will also benefit via firsthand experience in caring for patients who require primary palliative care—this can be undertaken on a palliative care rotation where they can be mentored by palliative care experts, or through co-managing patient care in the CICU. Learners benefit when expert CICU clinicians role-model communcation and palliaitve care skills; however, expertise may vary from provider to provider. Therefore, training should ensure that there are didactic and case-based educational opportunities to supplement bedside teaching.

14.13 Didactics

Didactic education is aimed at improving the learner's fund of knowledge and typically consists of lectures and target reading. When surveyed, non-palliative care providers who were asked about primary palliative care education mostly preferred didactic lectures for education when offered options that also included online curriculum, retreats, "coaching" during patient care, standardized patient encounters, and audio review of patient encounters [25]. Didactic teaching lends itself well to the teaching of symptom management. Although symptom management in palliative care is often most commonly ascribed to cancer patients, it has been shown that symptoms are common in a number of other life-limiting illnesses including cardiac diseases such as heart failure [26]. There are a number of symptoms that palliative patients with underlying life-limiting illnesses can experience that may need to be evaluated and managed including but not limited to pain, dyspnea, nausea, anxiety, depression, anorexia, insomnia, constipation/diarrhea, and fatigue. Effective symptom management starts with assessment which can be introduced in a didactic setting prior to modeling in actual patient encounters. In addition to serving as a mechanism for providing education to teams caring for patients with advanced cardiac illnesses, didactic lectures can create a forum to encourage awareness of system resources for assistance in symptom management or advance care planning in these patients. Despite the importance of didactics, a survey from 2020 on residency

and fellowship programs found varied uptake on palliative didactic topics including multiple training programs that had none at all [18]. Therefore, the implementation of primary palliative care didactics into the teaching of primary palliative care in the CICU is an important target.

14.14 Case Based

The American Heart Association and the American College of Cardiology, Core Cardiology Training Symposium (ACC COCATS) make recommendations for competencies cardiologists should achieve during training. For example, the cardiology trainee must master communication and exhibit empathy and compassion while becoming comfortable with leading family meetings, including those that discuss goals of care and end-of-life issues. Despite these recommendations most trainees do not undergo any formal training. Case-based learning often works to reinforce didactic teaching. In contrast to traditional lecture-based teaching (which is passive) new methods of teaching that are learner centered and promote active learning have been beneficial to medical education. Using active learning for the development of communication skills is particularly beneficial for teaching primary palliative care [27]. There are also opportunities to incorporate role-playing, videos of best practice, and simulation into educational programs. Case-based teaching lends itself well to teaching palliative care, as it is learner centered, and allows more time to be spent on working through problems and discussing viewpoints. In addition simulation of cases (for example goals-of-care discussions or breaking bad news) may help a learner practice valuable communication skills in a safe environment, before interacting with a patient, and has been shown to help learners retain skills and knowledge [28]. Learners may even benefit from attending an outside workshop or retreat. VitalTalk [29] offers evidence-based curriculum to improve communication skills surrounding serious illness. It has been shown to improve skills in specialties such as oncology, nephrology, and geriatrics. A group out of the University of Pittsburgh Medical Center health system designed a workshop called CardioTalk (molded after VitalTalk) which was aimed at imparting valuable communication skills specifically around challenging conversations for providers who practice in the cardiac intensive care unit [30]. First-year cardiology fellows and cardiology attendings participated in a 2+ days' workshop which included didactics and simulated patient encounters, followed by some small group conversations around observations and feedback. This training was well received by both the fellows and the attendings who took the course. All of the learners had a statistically significant increase in perceived preparedness for the following skills: giving bad news, running a family meeting, expressing empathy, discussing treatment options, negotiating denial, discussing withdrawal of treatment, request for futile treatment, discussion of code status, discussion of spiritual concerns, and family end-of-life concerns [31].

14.15 Conclusion

Primary palliative care should be taught to all providers in the CICU. A combination of teaching modalities, including bedside teaching, didactics, and case-based teaching, should be deployed to ensure that learners understand the clinical indications of therapies and interventions unique to the CICU, obtain key communication skills, can navigate complex decision-making, and are proficient in symptom management.

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