

Implementing a novel model for hospice and palliative care in the emergency department

An experience from a tertiary medical center in Taiwan

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Abstract

Hospice and palliative care has been recognized as an essential part of emergency medicine; however, there is no consensus on the optimal model for the delivery of hospice and palliative care in the emergency department (ED). Therefore, we conducted a novel implementation in a tertiary medical center in Taiwan. In the preintervention period, we recruited a specialist for hospice and palliative medicine in the ED to lead our intervention. In the early stage of the intervention, starting on July 1, 2014, we encouraged and funded ED physicians and nurses to receive training for hospice and palliative medicine and residents of emergency medicine to rotate to the hospice ward. In the late stage of the intervention, we initiated educational programs in the ED, an interdisciplinary meeting with the hospice team every month, sharing information and experience via a cell phone communication app, and setting aside an emergency hospice room for end-of-life patients. We compared the outcomes among pre-, during, and postintervention periods. Compared with 4 in the preintervention period, the cases of do not resuscitate (DNR) per month increased significantly to 30.1 in the early stage of intervention, 23.9 in late stage of intervention, and 34.6 in the postintervention period (all $P < .001$ compared with the preintervention period). Compared with 10.8% in the preintervention period, the ratio of DNR orders signed in the ED/total DNR orders signed in the study hospital was increased to 17.1% in early stage of intervention, 12.5% in late stage of intervention, and 22.8% in postintervention. Compared with zero in preintervention and early intervention, the cases of consultation with the hospice team increased significantly to 19 cases per month in the late stage of intervention and postintervention. The ability of nurses in hospice and palliative care, including knowledge and the timing and method of consultation with the hospice team, was also significantly improved. We successfully implemented a novel model of hospice and palliative care in the ED via a champion, education, and close collaboration with the hospice team, which could be an important reference for other EDs and intensive care unit in the future.

Abbreviations: CMMC = Chi-Mei Medical Center, DNR = do not resuscitate, ED = emergency department, LSMA = life sustaining management and alternatives.

Keywords: emergency department, hospice, palliative

1. Introduction

Patients with end-stage diseases, including cancer and diseases of noncancer cause, often visit the emergency department (ED) for relief of symptoms such as pain, dyspnea, nausea, vomiting,

constipation, fever, and pruritis.^[1–5] A previous study reported that end-of-life patients often did not receive the care they had anticipated^[6]; furthermore, some patients or their families may suffer from their first of end-of-life experience in the ED. Emergency providers, including physicians and nurses, have a

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unique opportunity to provide hospice and palliative care early in a patient's disease trajectory, promoting quality of life and reducing the cost associated with unnecessary treatments.^[1,2,7-9] In addition, the ED provides access to assessment, planning, and needed interventions 24 hours a day, 7 days a week by multidisciplinary teams, which became a solution for the large gap between out-patient care and admission.^[1,10]

Because of the busy environment and the nature of emergency medicine, which is developed as a specialty to provide life-sustaining and disease-directed treatments to patients with acute illness, most EDs cannot meet the urgent needs of these patients as well as those of the healthcare system.^[10] Some models have been developed for delivery of hospice and palliative care in the ED; however, there is no best and optimal choice yet because there is a great difference of medical resources, culture, insurance, and training across nations and institutions.^[1,10] In Taiwan, annual ED visits increased by 40%, from 4664,209 per year in 1995, the year of initiation of National Health Insurance, to 6569,247 per year in 2006, and are still increasing.^[11] Overcrowding greatly impedes the implementation of hospice and palliative care in the ED, which reflects the fact that there was no ED in Taiwan providing hospice and palliative care before our intervention. Therefore, we implemented a novel model for Taiwan in our ED according to our internal and external resources to improve the quality of care of end-of-life ED patients and popularize this important issue.

2. Methods

2.1. Study design and setting

Chi-Mei Medical Center (CMMC) is one of the largest tertiary medical centers in Taiwan and has a total 1276 inpatient beds and an 80-bed ED staffed with board-certified emergency physicians and hospitalists who provide emergency care to approximately 145,000 patients per year.^[12] CMMC has an integral palliative care center including a hospice team for share care, a 15-bed hospice ward, home hospice care, and ambulatory hospice care.^[12] The staff in the palliative care center is very integrated, including physicians, nurses, social workers, psychologists, clinical Buddhist chaplain, and volunteers, and all of them are well trained and experienced in hospice and palliative care.^[12]

2.2. Interventions and definition of the periods of preintervention, early stage of intervention, late stage of intervention, and postintervention

The preintervention period was defined as a date before July 1, 2014 (Fig. 1). In this period, our ED consisted of emergency physicians and hospitalists. Emergency physicians cared for the visiting ED patients and the hospitalists cared for the patients who needed observation or were awaiting beds for admission.^[12] The hospitalists included attending physicians from the specialties of hospice and palliative medicine, neurology, infectious disease, cardiovascular medicine, chest medicine, endocrine, geriatric medicine, and oncology.^[12] The attending physician specializing in hospice and palliative medicine (T-CW) became a champion to lead the subsequent implementation of our intervention. In the early stage of intervention starting July 1, 2014, we encouraged and funded all ED physicians and nurses to receive training for hospice and palliative medicine and sent every resident of emergency medicine to rotate to the hospice ward for 1 month. In the late stage of intervention starting July 1, 2015, we

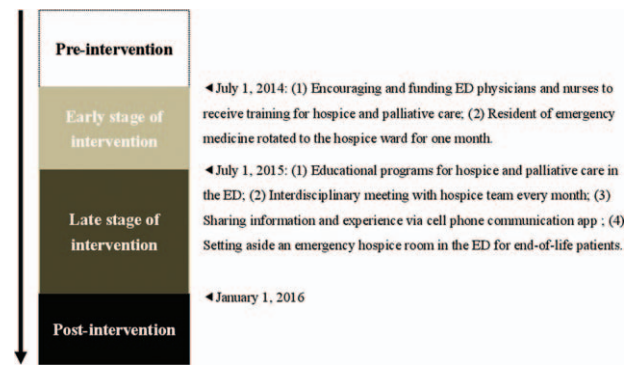


Figure 1. Definitions of the periods of preintervention, early stage of intervention, late stage of intervention, and postintervention. ED = emergency department.

initiated the following interventions in further detail: educational programs for hospice and palliative care in the ED, interdisciplinary meeting with the hospice team every month, sharing information and experience via cell phone communication app, and setting an emergency hospice room for end-of-life patients in the ED.

2.3. Participants for hospice and palliative care

All ED patients who fulfilled the criteria of signed a do not resuscitate (DNR) and life expectancy <24 to 48 hours were eligible for hospice and palliative care (Fig. 2). The criteria were set by our committee with the emergency providers, hospitalists, and hospice team according to the characteristics of our patients and medical resources.

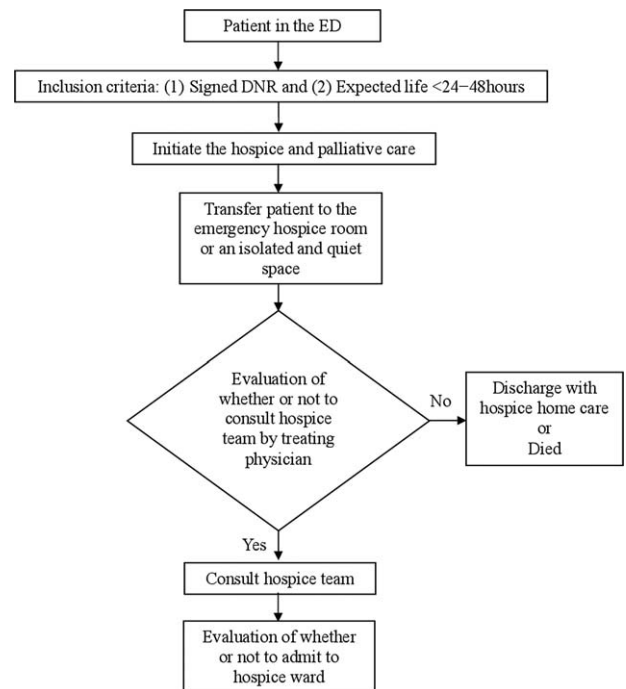


Figure 2. Flowchart for implementing hospice and palliative care in the emergency department. ED = emergency department, DNR = do not resuscitate.

2.4. Data collection

We collected cases of DNR and consultation with the hospice team from medical records. In the late stage of intervention, we conducted an anonymous questionnaire study for the nurses before and after the educational programs for hospice and palliative care, respectively. We also collected data on extubation, family conference, and use of emergency hospice rooms in the ED.

2.5. Outcome measures

The outcome measures were as follows: DNR cases in the ED, ratio of DNR orders signed in the ED/total DNR orders signed in CMMC, case of consultation with hospice team in the ED, ability of the ED nurses in hospice and palliative care. The abilities were classified as “know how to perform hospice care” and “know when and how to consult hospice team.” We also analyzed the characteristics and outcomes in patients receiving DNR and hospice and palliative care.

2.6. Ethics statement

We conducted this study strictly under the Declaration of Helsinki and the requirements of the Institutional Review Board at CMMC. Informed consent for the patients was waived because the practices were routine in the study hospital. Informed consent for the nurses in the questionnaire study was also waived because the questionnaires were anonymous.

2.7. Statistical analysis

We used an independent sample *t* test for continuous variables and Pearson chi-square test for categorical variables. McNemar test was used for paired nominal data. SPSS 20.0 (IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.) was used for statistical analysis. We defined the significance level as 0.05 (2 tails).

3. Results

There were 4 cases per month of DNR orders signed in the ED in the preintervention period (0.04% of the total ED visits per month); however, the case number increased to 30.1 cases per month (0.3% of total ED visits per month) in the early stage of the intervention, 23.9 case per month in the late stage of the intervention (0.24% of total ED visits per month), and 34.6 cases per month in the postintervention (0.35%) (all *P* < .001

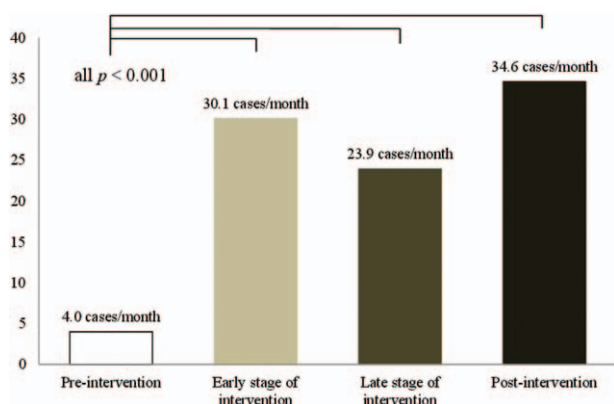


Figure 3. Comparison of case per month for signing a do not resuscitate order in the emergency department among the preintervention, early stage of intervention, late stage of intervention, and postintervention periods.

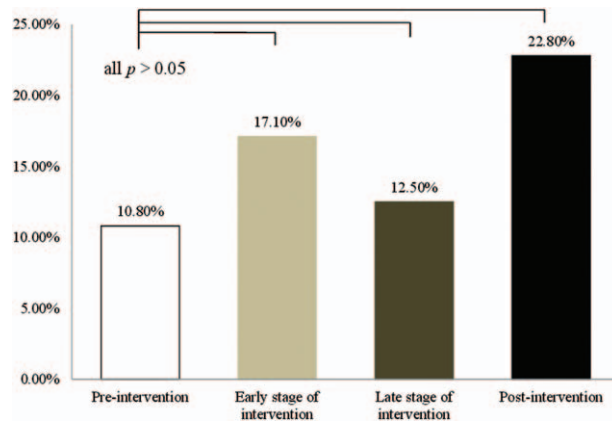


Figure 4. Comparison of the ratio of do not resuscitate (DNR) orders signed in the emergency department/total DNR orders signed in Chi-Mei Medical Center among the preintervention, early stage of intervention, late stage of intervention, and postintervention periods. CMMC = Chi-Mei Medical Center, DNR = do not resuscitate, ED = emergency department.

compared with preintervention) (Fig. 3) period. The number of DNR orders signed in the ED as a percentage of total DNR orders signed in CMMC increased from 10.8% in the preintervention period to 17.1% in the early stage of the intervention, 12.5% in the late stage of the intervention, and 22.8% in the postintervention period; however, the difference was not significant (all *P* > .05) (Fig. 4). In the comparison of the number of cases per month involving consultation with the hospice team, there were zero cases in the preintervention and early stage of intervention; however, the number of cases per month increased significantly to 19 in both the late stages of intervention and postintervention (all *P* < .001) (Fig. 5). In the comparison of the ability of nurses in hospice and palliative care in 94 ED nurses, 68.1% (64/94) knew how to perform hospice care in the preintervention period and this percentage increased to 95.7% (90/94) in the postintervention phase (*P* < .001 using McNemar test) (Fig. 6). The percentage of ED nurses reporting that they “knew when and how to consult the hospice team” also increased from 57.4% (54/94) in the preintervention to 95.7% (90/94) in the postintervention phase (*P* < .001 using McNemar test).

In the analysis of characteristics and outcomes in ED patients signing DNR orders and ED patients receiving hospice and palliative care between July 1, 2014 and July 31, 2016, the age subgroup of ≥85 years had the highest percentage with 44.1%

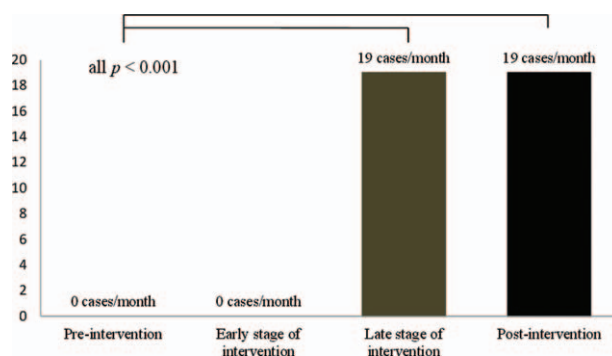


Figure 5. Comparison of the number of cases per month who consulted with the hospice team in the emergency department during the preintervention, early stage of intervention, late stage of intervention, and postintervention periods.

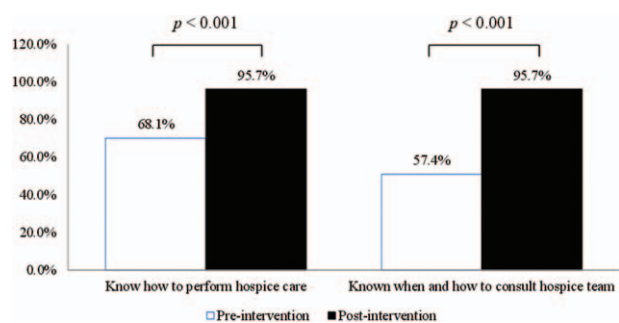


Figure 6. Comparison of the ability of emergency department nurses in hospice and palliative care between preintervention and postintervention periods. ED = emergency department.

(286/648), followed by 21% (136/648) in the 75 to 84-year age group, 19% (123/648) in the 65 to 74-year age group, and 15.9% (103/648) in the <65-year age group (Table 1). Noncancer cause was 73.3% (475/648) in patients who signed a DNR order. The percentage of ED patients with <7 days from DNR order signing to death was 44.2% (287/648). The percentage of ED patients who consulted with the hospice team in the ED patients with DNR was 29.8% (193/648). During the period between July 1, 2014 and July 31, 2016, we performed extubation for 18 end-of-life ED patients, a significant increase compared with zero extubation in the preintervention period. The family conference and use of emergency hospice room in the postintervention was 9 cases per month and 6 cases per month, respectively.

4. Discussion

As a pilot trial in the EDs of Taiwan, we prospectively implemented a novel model for hospice and palliative care in the CMMC. The case for signing DNR orders in the ED and consultation with the hospice team increased significantly after a champion led the intervention, encouraging and funding emergency providers for training of hospice and palliative care, residents rotating to the hospice ward, educational programs for

all emergency providers, interdisciplinary meeting, sharing experience via cell phone communication app, and setting aside an emergency hospice room. In addition, the ability of ED nurses in hospice and palliative care, including “how to perform hospice care” and “when and how to consult the hospice team,” improved significantly. The ED patients who signed DNR orders were mainly the elderly and those with noncancer cause. Nearly half of them died within 7 days, and nearly 30% of them consulted hospice team. There were a total of 18 cases receiving extubation in the ED from the initiation of this model until July 31, 2016. In the postintervention, there were 9 cases per month for family conference and 6 cases per month of use of the emergency hospice room.

Our model is an important reference for implementing hospice and palliative care in the ED in Taiwan. Some models have been proposed to provide optimal palliative care in the ED; however, individual EDs need to consider their internal and external resources to adapt the best-fit model for them. Current models, such as Life Sustaining Management and Alternatives (LSMA) in St. Joseph’s Regional Medical Center,^[13] ED-based palliative care consults at Scripps Mercy Hospital,^[10] and ED Focused Care at Shands-Jacksonville,^[11] were all good examples of hospice and palliative care in the ED. However, these models were built on the healthcare system in the United States, although each was outstanding, they may not be applicable to other nations due to the differences in culture, healthcare systems, and insurance. In Taiwan, because of the inexpensive, convenient, and universal services provided by the National Health Insurance, the average number of ED and out-patient visits per person was 15 times/y in 2013, which is significantly higher than the United Kingdom (5.9 times/y), United States (3.5 times/y), and the countries in the Organization for Economic Co-operation and Development (6.5 times/y).^[14] Taiwan citizens often rush to the ED for minor diseases, such as common cold, fever, acute gastroenteritis, and insomnia, which make the ED overcrowded, especially in the medical centers.^[14] Taking CMMC for example, there were approximately 2500 patients per month waiting for beds in the ED.^[15] Overcrowding, heavy workload in ED physicians and nurses, and chaotic environments are the main barriers to implementing hospice and palliative care in the ED.^[1,10] To solve the above problems, we have hospitalists consisting of specialists from internal medicine to care for the patients observed or waiting for admission in the observation unit first, which greatly decreased the workload and stress on ED physicians.^[15] The sufficient manpower and interdisciplinary collaboration improved the quality of care and became an important basis on which to implement subsequent hospice and palliative care in the ED.^[15]

We recruited a hospitalist specialized in hospice and palliative medicine who was enthusiastic in palliative care as the champion in the ED. The palliative care champion can become the key opinion leader for hospice and palliative care to educate all of the emergency providers and recruit the patients, especially in the early stage.^[10] The champion can be an emergency physician^[10,16] or other specialist such as in our model, depending on who is the right person. Subsequent education in palliative and end-of-life care in all emergency providers, interdisciplinary meetings with the hospice team, and sharing information and experience via cell phone communication app relived the barriers of lack of knowledge and negative attitude in emergency providers.^[10] In addition, we also selected an isolated and quiet space for an emergency hospice room to provide privacy for end-of-life patients and their families.^[10]

Table 1

Analysis of characteristics and outcomes in ED patients signing DNR orders and ED patients receiving hospice and palliative care between July 1, 2014 and July 31, 2016.

Characteristics	Patients with DNR (n=648)
Age, y	
<65	103 (15.9%)
65–74	123 (19.0%)
75–84	136 (21.0%)
≥85	286 (44.1%)
Major cause for DNR	
Cancer	173 (26.7%)
Noncancer	475 (73.3%)
Days from DNR to death	
<7	287 (44.3%)
≥7	361 (55.7%)
Consultation with hospice team in the ED	
Yes	193 (29.8%)
No	455 (70.2%)
Extubation in the ED (July 1, 2014–July 31, 2016)	18 cases
Family conference (postintervention)	9 cases/mo
Use of emergency hospice room (postintervention)	6 cases/mo

Data are presented as n (%). DNR = do not resuscitate, ED = emergency department.

Our implementation showed a significant increase in the number of DNR orders signed in the ED in the intervention and postintervention compared with the preintervention period. Determination of patient goals as early as possible, including discussion of DNR as appropriate to the individual patient, is very important.^[13] No other study about this issue could be compared with our results directly; however, in the LSMA, 56% of patients with hospice consult initiated DNR orders (73/131) in the ED, which could provide us a reference from another point of view.^[13] The majority (73.2%) of the patients signing DNR orders in the ED were noncancer patients in our study. Cancer patients are more likely to sign a DNR order than noncancer patients.^[17] Previous studies in Taiwan reported that the percentage of critically ill patients signing DNR orders in the intensive care unit was 65.8% to 77.0% in total and 99.8% in cancer patients, respectively.^[18,19] Although hospice and palliative medicine was primarily developed to support incurable cancer patients, the need for hospice and palliative care in noncancer patients increases rapidly and becomes a very important issue in this field.^[20–22] In Taiwan, the Hospice Palliative Care Act, amended on January 9, 2013, legalized compassionate extubation;^[23] however, there are serious barriers, including knowledge and emotional stress, to emergency providers performing this procedure. After our implementation of hospice and palliative care, there were 18 cases who received extubation in the ED, which suggested the success of our effort.

The major strength of this study was that it was a pilot model implementing hospice and palliative care in the ED according to the characteristics of insurance, medical resources, and culture in Taiwan. Strength was that our study provided a comparison between pre, during, and postintervention periods. In spite of the strengths, there are some limitations. First, we only evaluated the ability of hospice and palliative care in ED nurses and did not include ED physicians. However, the overall outcome was improved significantly, which reflected the success of this model and waived the need for assessment of individual physicians. Second, this model may not be generalized to other EDs or nations due to the difference in insurance, culture, and medical resources.

5. Conclusion

We successfully implemented a novel model for hospice and palliative care in the ED by a professional leader, including education of ED physicians and nurses, close collaboration with the hospice team, and an isolated space for patients with end-of-life, which could be an important reference for other EDs and intensive care unit in the future.

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