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The Journal of Teaching and Learning Resources

Original Publication

OPEN ACCESS

Development of a Hybrid Simulated Patient Experience to Practice Care of the Dying Older Adult

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Citation: Hayley DC, Kalender-Rich JL, Mack J, Swagerty D. Development of a hybrid simulated patient experience to practice care of the dying older adult. *MedEdPORTAL*. 2018;14:10777. https://doi.org/10.15766/mep_2374-8265.10777

Abstract

Introduction: Care of the dying older adult includes critical skills that emerging physicians should master but are not consistently taught. Simulation has been shown to be an excellent tool for teaching these skills in a standardized fashion. Simulation allows direct observation to assess and provide learner feedback. Our goal was to develop a learning activity to practice skills caring for the older adult at the end of life and identify areas in need of improvement. **Methods:** We developed a hybrid simulation in which fourth-year medical students and internal medicine (IM) residents cared for a 70-year-old patient (Laerdal SimMan 3G) who was actively dying in the emergency department. He was accompanied by his wife (standardized patient) and a nurse (standardized role). Over the academic year 2012-2013, we observed and videotaped 83 fourth-year medical students and 22 first-year IM residents in this setting. We assessed the learners' completion of 15 tasks associated with good end-of-life care. **Results:** All learners demonstrated professional activity working with the nurse, and all medical students but one gave opioids appropriately for pain. Only 19% of the medical students appropriately disclosed the patient's status to the wife using the words *death* and/or *dying,* and only 50% of the IM residents did so. **Discussion:** We successfully developed a learning activity in which learners can practice their skills caring for the dying older adult. We also determined that there is opportunity for improvement concerning communication, especially with the use of the words *death* and *dying*.

Keywords

Palliative Care, Simulation, Standardized Patients, Dying, Older Adult, Terminal Care, End-of-Life Care

Appendices

A. Simulation Case.docx
B. SP Script.docx
C. Checklist of Tasks.docx
D. Debriefing Guide.docx

All appendices are peer reviewed as integral parts of the Original Publication.

Educational Objectives

By the end of this activity, learners will be able to:

1. Identify the active dying process in a patient who has been on hospice.
2. Order pain medications for a dying patient with pain.
3. Communicate with the patient's family about goals of care, resuscitation status, use of medications for symptoms, presence of imminent death, and then death.
4. Practice empathy by providing verbal and physical comfort to the patient's spouse, using attentive and open body language and supportive words and not displaying signs of discomfort during the encounter.
5. Interact according to established standards of professionalism.

Introduction

Care of the dying patient is a critical skill for physicians. Shortly after graduating from medical school, most residents are expected to care for dying patients. Therefore, it is critical to equip emerging physicians with skills to adeptly care for patients at the end of life. Because the majority of individuals who die are older, the Accreditation Council for Graduate Medical Education has mandated education in end-of-life care measured through geriatrics competencies and suggested palliative care competencies and educational objectives.[1-3] Although Dickinson[4] reported that 99% of US medical schools offer some palliative education, the format remains nonuniform.[5-7] However, through efforts to develop national standards for consistent training throughout medical school, development, integration, and support of curricula are ongoing.[8-10]

Good care of the dying patient requires several specialized skills.[11] One must first recognize that the patient is dying and then be able to competently assess and treat symptoms. To care for a dying patient well, one must have emotional intelligence, courage to face death, and exemplary communication skills. In addition, the care provided must expand to include the patient's family and loved ones.[2,10,12] Most practicing physicians have not been specifically trained in these skills. Medical students and residents alike report feeling not very well prepared to address both physical and psychological end-of-life issues.[4,13-17] Even experienced physicians and nurses wish they had more training in skills for good end-of-life care.[18]

Simulations are an excellent experiential opportunity to practice skills. Indeed, it has been shown that medical education through simulation is superior to traditional medical training, with simulation being demonstrated to improve medical students' competency and skills in several domains.[19-21] Standardized patients (SPs) used in simulations are ideal for teaching communication skills so that evaluators can identify knowledge gaps and provide feedback to learners.[22-25] Moreover, residents who practice palliative skills in simulations are three times more likely to be comfortable than residents who do not.[26]

Our goal was to successfully develop a learning activity to practice skills caring for the older adult at the end of life. A hybrid simulation (using both SPs and a mannequin) proved ideal for a realistic complex clinical setting that involved a dying patient, as well as the family and nursing staff. Initially designed for fourth-year medical students, the simulation was later expanded to include the incoming internal medicine (IM) residency class as a part of a core skills orientation. This was a logical mix as both groups were just at the cusp of caring for patients more independently. With this setting, we hypothesized that we could identify areas in need of improvement in the skills related to good end-of-life care.

This resource is a unique contribution to the literature. While there are excellent educational resources that teach good communication and symptom management near the end of life and those that focus on active dying in pediatric patients, we were unable to find any publications that address practicing care of the older adult who is actively dying in a standardized fashion.[27,28] Hence, this resource fills that gap.

Methods

Our hybrid simulation used distinct integrated and complementary methods with a mannequin and wife and nurse in standardized roles to reflect the complexity of caring for a dying patient.

Development

All fourth-year medical students in their critical care selective (approximately seven to 15 per month) and all IM residents at the beginning of their first year at the University of Kansas Medical Center were required to participate in the following observed simulated patient encounter over a half-day.

We developed this scenario collaboratively based on several actual patients. The learners were prepped for caring for a terminally ill, dying patient in several ways. For the medical students, this learning activity was embedded in a six-part series accompanied by corresponding didactic sessions that began in the second year and emphasized palliative care. Students diagnosed and broke bad news of this patient's terminal multiple myeloma as well as continuing to care for him as his disease progressed. They were aware that he had been enrolled in hospice. IM residents participated in this encounter at the beginning of their training as a part of their introduction to core skills, and the simulation was preceded by an activity about end-of-life care. While the learners did not know this scenario would end with the patient dying, we purposefully made it very clear that the patient had been terminally ill for a long time and that he and his wife wanted care through the hospice benefit, including comfort measures only and Do Not Attempt Resuscitation (DNAR) instructions.

Assessment of learners was conducted to identify areas in need of improvement in the critical skills related to end-of-life care. Debriefing was performed by SPs and by the faculty who observed each

encounter so that feedback was formative as well as timely and specific. The debriefing also offered an environment where learners could discuss the emotional implications of caring for a dying patient.

Equipment/Environment
The encounter took place in the medical school simulation laboratory with the patient (a Laerdal SimMan 3G) in a mock emergency department (ED). The SimMan 3G had multiple lifelike features including a palpable pulse, chest movement to simulate respiration, blinking eyes, and programmed vocalizations. Blood pressure cuff, finger pulse oximeter, and telemetry leads on the patient were connected to a bedside monitor displaying vital signs that were electronically adjusted dynamically by an operator in an adjacent room based on the script and learners' interactions. The mock ED had a two-way mirror and audio feed by which faculty and operators viewed and listened. In addition, it had video-recording capacity and the ability to play video in the adjacent room.

Moulage:
- Gray wig.
- Pale face/makeup to look aged and ill.

Props:
- Hospital bed.
- Hospital gown.
- Oxygen cannula/tubing.
- Oxygen mask.
- Yankauer/suction tubing and canister.
- Med cart.
- Tissues.
- Two chairs.
- Paper chart for learner.
- Desk phone for nurse's use.
- List of home medications wife keeps in purse.

Equipment attached to mannequin:
- ID band (with name and birthdate).
- O_2 cannula.
- DNAR band.
- Blood pressure cuff.
- Finger oximeter.
- Telemetry leads.

Medications and fluids:
- IV fluids: normal saline by gravity drip.
- IV meds: syringes; vials with the following meds: morphine, hydromorphone, fentanyl, glycopyrrolate, lorazepam.

Personnel
- Simulation center and SP program administration: experienced in administration of formative and summative programs in the Schools of Medicine and Nursing curricula, including many with strong emotional content; responsible for screening and hiring SPs; scheduled and managed learners cooperatively with faculty and departmental teams; scheduled and managed space and simulation equipment and all other personnel.
- Wife (SP): Three experienced female actors/SPs were hired after carefully being screened to manage emotions while playing a role. They were informed of the sensitive content on hiring and compensated at a higher than usual SP rate due to the emotional nature of the role. SPs were trained

to a script over four 3-hour sessions by clinical faculty board-certified in geriatrics and palliative care (Daniel Swagerty, Jessica L. Kalender-Rich, and Déon Cox Hayley). Faculty observed each encounter in real time, and thus, the SPs received ongoing feedback for consistency and on how to respond to questions for which there were no scripted responses. Each half-day, two SPs were present to alternate encounters. As the role was emotionally challenging and SPs were trained to cry when their husband died, they needed time to recover.

- Primary nurse (standardized role): Two nurses were hired and trained to react in standardized fashion to statements and actions of the learners and the patient's wife. One nurse was present per half-day.
- SimMan operator: trained in use of SimMan and details of this encounter; operated the SimMan remotely from an adjacent room connected with speakers and a two-way mirror.
- Faculty: Three faculty members board-certified in geriatrics/palliative care participated in viewing, completing assessments, and giving feedback. Two faculty presented per session. These faculty were experienced in providing and assessing optimal care of the dying older adult and the goals of the encounter.

Implementation

We scheduled approximately seven medical student learners in a half-day at 15-minute intervals with three or four encounters and then a 25-minute break for debriefing. We ran the encounter 1 to 2 half-days per month depending on the number of students in a critical care selective that month. All 23 first-year IM residents were scheduled over 4 weeks in the month of August.

The scenario was a 70-year-old man with an 8-year history of multiple myeloma who had been enrolled in home hospice for the last year and a half. When he started having extreme pain and became less responsive at home, his wife panicked and brought him to the ED without calling hospice staff. If asked, his wife expressed that they had not changed their desire to continue with end-of-life care through the hospice benefit, including DNAR.

Learners were notified that they were being taped and observed. When the learner entered the room, the nurse gave him or her a chart that summarized the patient's medical history and recent events. The learner was told to assess and treat the patient's symptoms, as well as to provide support to the patient's wife during the encounter.

The operator adjusted settings on the SimMan in accordance with the learner's actions. For instance, when the learner asked for pain medication and the nurse simulated giving it, the respirations and vocalizations were slowed to reflect improvement of symptoms. If needed, the nurse also gently prompted the learner to provide medications and clarify communication to the wife. The patient's condition deteriorated, and he eventually died. This encounter took approximately 12 minutes. The details of the scenario are included in the simulation case (Appendix A) and the SP script (Appendix B).

Assessment

We developed a checklist (Appendix C) of 15 essential tasks learners should complete as a part of good care of the dying patient. Palliative care competencies for graduating medical students were published after our study period; however, many of the tasks do link to these competencies. We purposefully worded our expectations in terms of discrete tasks so that we could clearly determine whether the tasks were completed or not. For instance, as some of the competencies are broad ("Demonstrates patient-centered communication techniques when giving bad news and discussing resuscitation preferences"), we assigned specific tasks to show competency, such as "Communicated that the patient is nearing the end of life" and "Used the words 'death' or 'dying.'" Some of our tasks were not explicitly contained in the palliative care competencies but were observed in the encounter, such as "Did not display signs of discomfort during the encounter" and "Remained at the bedside throughout the encounter."

All videos of medical students were reviewed by Jessica L. Kalender-Rich and Daniel Swagerty to determine if each of these discrete tasks had been completed or not. All videos of residents were reviewed by Jessica L. Kalender-Rich and Déon Cox Hayley for the same.

Debriefing

After completion of the simulation, the learner watched a video recording of his or her encounter in a viewing room. After each subsequent learner completed his or her encounter and came into the viewing room, the group watched the next encounter together. After three to four learners, there was a 25-minute group debriefing attended by learners, faculty who had observed the encounters, and the patient's wife and nurse. Our debriefing guide is included as Appendix D.

Results

In 2012-2013, 107 medical students completed this exercise; however, we viewed and analyzed tasks completed in only 83 videos due to problems with recording. Twenty-three residents completed the exercise, but because of recording difficulties, we viewed and analyzed tasks for 22. We assessed performance of 15 tasks in the categories of communication, empathy, professionalism, and medical skills.

Results are presented in the Table. All students and residents interacted with the nurse in a professional manner, and all residents and all students but one used opioids for pain. Other tasks that at least 90% of learners completed included providing verbal comfort to the wife (94% of students, 95% of residents), remaining at the bedside throughout the encounter (93% of students, 95% of residents), and demonstrating empathy to the patient and wife (90% of students, 95% of residents). Residents were more likely than students to explain the use of medications for symptoms and to perform an exam to pronounce death. Also, residents were slightly less likely to appear comfortable during the encounter.

Table. Simulation Results

Task Completed	No. Students[a] (%)	No. Residents[b] (%)	*p*[c]
Communication			
Clearly confirmed goals as hospice	67 (81)	18 (82)	1.000
Confirmed Do Not Attempt Resuscitation	42 (52)	10 (45)	.811
Communicated patient is nearing end of life	56 (68)	17 (77)	.443
Used the word death or dying	16 (19)	11 (50)	.006[d]
Told his wife he had died	58 (70)	16 (73)	1.000
Explained use of meds for symptoms	63 (76)	20 (91)	.151
Mean %	61	70	.234
Empathy			
Provided verbal comfort to wife	78 (94)	21 (95)	1.000
Provided physical comfort to wife	69 (83)	18 (82)	1.000
Had attentive and open body language	69 (83)	18 (82)	1.000
Did not display signs of discomfort	71 (86)	17 (77)	.344
Mean %	87	84	.689
Professionalism			
Remained at bedside	77 (93)	21 (95)	1.000
Demonstrated empathy to patient and wife	74 (90)	21 (95)	.684
Interacted with nurse professionally	83 (100)	22 (100)	1.000
Mean %	94	97	.498
Medical skills			
Ordered opioids for pain	82 (99)	22 (100)	1.000
Performed exam to determine death	57 (69)	17 (77)	.600
Mean %	84	89	.710
Mean % total	77.53	81.40	.726

[a] $N = 83$.
[b] $N = 22$.
[c] Two-tailed; values calculated using Fisher's exact test.
[d] Statistically significant.

In the category of communication skills, only 61% of the students and 70% of the residents completed all the tasks. Only 16 of 83 students (19%) appropriately disclosed the patient's status with the words *death* and/or *dying*. While residents were statistically significantly more likely to use this language ($p = .006$), only one-half of them did so.

Discussion

We successfully developed a learning activity in which learners can practice their skills caring for the older adult at the end of life with a hybrid simulation. On video assessment of skills related to end-of-life care, we identified areas in need of improvement in the skills of fourth-year medical students and IM residents.

It is reassuring that the learners overall were perceived to interact with the nurse in a professional manner. While there were several areas where learners did not perform at an expected level, the most concerning is the area of communication and, most notably, the infrequent use of the specific terms *death* and *dying*. In our debriefing session, one of the objectives of feedback stressed (through real-life experience) the importance of letting the wife clearly know the patient was dying and some phrases that might be helpful: "It looks as if your husband is in the dying process" or "I am concerned, he may be dying now."

Some of the areas where the learners did not perform as well may have been related to our lack of explaining expectations, for example, the pronouncement of death. The session ends when the learner steps out in the hall for a minute, and it would be acceptable to do a pronouncement after that. However, this is a skill that may be taught sufficiently without having to do a simulation.

We also found areas of concern that were not captured well on our task list: For instance, while nearly everyone understood the importance of giving the patient pain medication and did so, there were some who were so concerned about giving too much pain medication that they warned the wife the medication might contribute to the patient's death. We addressed this area of concern in our debriefing sessions and are now intervening more aggressively in education of the learners about how to dose and communicate about use of opioids at the end of life.

There is variability in the exposure to care of a dying older adult in training. Many students observe end-of-life care but are not the primary person making decisions, communicating, and providing care. Some students may understand recommendations on end-of-life communications but may not have had the opportunity to practice, and other students may not be well equipped at all to communicate that a patient is dying. In Schaefer's expert consensus of development of palliative care competencies, the communication domain is weighted the most important.[2] This simulation pushes the learner to practice these components of care of the dying older adult, especially communication, which appears to be the most challenging.

Limitations include comparison of students and residents given that their background training differs. Students were all trained at our institution with the same curriculum though with differing clinical experiences. Most of these students were from Kansas. Some of the residents who completed this encounter came from our institution and had completed the encounter as a fourth-year student, some came from other US medical schools, and some completed medical school outside the US where there was a very different approach to end-of-life care.

Other study limitations include that the skills to provide good end-of-life care are not well categorized; thus, we came up with our own tasks and categories based on geriatrics and palliative care competencies. Learners were evaluated in a simulated setting, not real life, and were aware that they were being evaluated, so anxiety could have potentially affected performance.

The strength of this study is that the simulation is an ongoing educational encounter, and now that we have identified areas in need of improvement, we can specifically teach these skills. At present, we do not know if the feedback session is enough to influence future comfort with saying the words *dying* and *death,* and future studies can help us determine if the session is helpful. However, we have added skills training to a palliative care workshop in which all third-year medical students participate during their geriatrics clerkship wherein, during a role-play setting, they must tell dying patients that they are dying. We look forward to studying the effectiveness of this intervention.

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Disclosures
None to report.

Funding/Support
Dr. Hayley reports grants from the Kansas Reynolds Program in Aging, Donald W. Reynolds Foundation, during the conduct of the study.

Dr. Kalender-Rich reports grants from the Reynolds Foundation during the conduct of the study.

Prior Presentations
Kalender-Rich J, Hayley D. Simulated death, an innovative, interprofessional teaching method. Interactive educational exchange presented at: American Academy of Hospice and Palliative Medicine Annual Assembly; February 2013; New Orleans, LA.

Kalender-Rich J, Swagerty D, Paolo A, Hayley D. Simulated death: a new strategy to teach end of life care. Presented at: American Geriatrics Society Annual Scientific Meeting; May 1-5, 2013; Grapevine, TX.

Kenyon J, Hayley D, Kalender-Rich J. Death and dying: easy to recognize and hard to say. Presented at: American Geriatrics Society Annual Scientific Meeting; May 14-18, 2014; Orlando, FL.

Muthyala A, Kalender-Rich J, Hayley D. Beyond words: how well medical students used non-verbal cues to offer support. Presented at: American Geriatrics Society Annual Scientific Meeting; May 14-17, 2015; Washington, DC.

Ethical Approval
The Human Safety Committee at the University of Kansas Medical Center approved this study.

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Received: May 7, 2018 | **Accepted:** October 22, 2018 | **Published:** November 28, 2018