



# Medical students' experience of culturally diverse family presence during resuscitation simulation

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**Purpose:** This report describes the development of a simulation scenario for medical student that incorporates cultural diversity within the context of family presence during resuscitation (FPDR).

**Methods:** Using a hybrid simulation approach, we designed a scenario focusing on communication with a family that immigrated from Korea to the United States during cardiopulmonary resuscitation (CPR). The scenario objectives were for learners to perform CPR with family presence, communicate with the family, and understand and negotiate cultural needs. Following a pilot scenario with two inexperienced volunteer medical students as learners, the program was evaluated through anonymous surveys and informal focus group feedback.

**Results:** Students noted that this simulation differed from previous experiences as compared with emphasizing family communication rather than patient diagnosis or treatment. Students valued experiencing the practical application of cultural competence concepts. The suggestions for scenario improvement included balancing two student participation roles, adjusting the timeline, and utilizing a standardized family member.

**Conclusion:** This pilot study suggests that an FPDR simulation program can be effectively repeated with multiple medical students and applied to CPR simulations involving diverse cultural backgrounds.

**Key Words:** Communication, Cultural competency, Cultural diversity, Simulation

## Introduction

Family presence during resuscitation (FPDR) refers to the practice of allowing family members or loved ones to be present in the room while healthcare providers are performing life-saving procedures, such as cardiopulmonary resuscitation (CPR) [1]. FPDR is ethically recommended for promoting shared decision-making and

respecting family autonomy [2]. Managing FPDR requires physicians to have not only knowledge and skills related to resuscitation, but also non-technical skills, such as communication with family members, which are equally crucial. Healthcare professionals tasked with FPDR responsibilities must implement effective practices accordingly. In this regard, learning outcomes of FPDR resident simulation programs have emphasized the development of non-technical skills like teamwork, crisis

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management, and strategies for involving families in resuscitation without compromising the quality of CPR [3]. However, simulation-based education focusing on FPDR is more common for nurses than for physicians, and even less so for medical students [4].

It is noteworthy that FPDR requires healthcare providers to communicate with the family based on cultural humility, especially if the culture and linguistic contexts of the patient and their family differ from those of healthcare providers. Cultural competence in healthcare combines the tenets of patient/family-centered care with an understanding of the sociocultural influences that affect the quality of medical services and treatment [5]. Englander et al. [6] report that patient or family communication is a general physician competency that specifically focuses on cultural diversity. Interestingly, FPDR typifies an occasion to attend to the cultural background of patients and families and to learn to navigate the impact of cultural differences in resuscitation situations.

However, previous studies on CPR quality in FPDR scenarios lack detailed information regarding the design and facilitation of such simulation scenarios [7,8]. Herein, we aim to develop a scenario for medical students that incorporates cultural diversity within the FPDR context, gather data from this pilot study to refine the program, and share our experiences.

## Methods

This is a case-based scenario that uses hybrid simulation with a high-tech patient mannequin and an embedded family member participant. It was designed by a Korean emergency physician (K.H.P.) during a postgraduate simulation fellowship at the SimTiki Simulation Center in Hawaii, United States. The protocol was reviewed by the

University of Hawaii Human Studies Program and determined to be a non-human-subject research, with an exemption from the formal review. Video and audio recordings of the simulation and debriefing were collected in accordance with policies in which all users of the center acknowledged that video/audio recordings could be used for research and education purposes.

### 1. Simulation program design and development

This pilot educational program's explicit learning outcomes focused on communication and cultural competencies related to FPDR. The scenario objectives focused on FPDR cross-cultural content and communication during support for a patient undergoing CPR and his wife during CPR and the death of her husband in an American emergency department. Medical students' performance goals were to conduct CPR in the presence of the family and to communicate effectively with the patient's wife, while gathering and understanding family needs and discussing medical decision-making (Table 1). Target learners were second-year medical students in University of Hawaii with previous simulation learning experiences. Volunteer student members of a simulation education student interest group were recruited via email.

The authors conducted preliminary test in March 2024 to enhance the scenario and clarify participants' roles. After alpha testing, learner and teacher team roles were established as follows: patient's wife (embedded par-

Table 1. Course Objectives of Family Presence during Resuscitation Simulation

| No. | Course objectives   |
|-----|---|
| 1.  | Invite the family to observe resuscitation                                  |
| 2.  | Perform resuscitation in the presence of family                             |
| 3.  | Provide a verbal resuscitation summary that is understandable to the family |
| 4.  | Explore family needs and culture regarding current resuscitation            |
| 5.  | Provide family-centered care and utilize shared decision-making             |

ticipant), CPR team nurse (embedded participant and facilitator), medical student learners playing the role of CPR team physicians, one family support physician, and one CPR leader.

## 2. Scenario description: cultural background

The patient was Mr. Kim, a 60-year-old man who had immigrated to Hawaii 20 years ago with his wife and children. They maintained their Korean lifestyle and culture and had functional but non-fluent English language skills. Mr. and Mrs. Kim have one son and one daughter. Their son is 31 years old and lived nearby, and their daughter is 28 years old and lived in San Diego.

It is common practice for Koreans to massage the limbs to help with blood circulation when someone is unconscious or has collapsed. Koreans also consider it an expectation for the eldest son to be present at the bedside when a parent is dying, even if the eldest son is not the

eldest child.

Mr. Kim woke up around 6 am and Mrs. Kim was preparing breakfast. Mr. Kim suddenly collapsed and was brought to the emergency department (ED) by paramedics, with CPR in progress. Notably, ED arrival is the starting point of the scenario. Mrs. Kim remains in close physical proximity with the patient in the ED during the CPR and massages the patient's feet and legs. When the doctor explains that the patient has died, she requests continued chest compressions, saying that he needs to stay alive until his son arrives.

A condensed 10-minute timeline for a scenario that would last approximately 30 minutes in reality is depicted in Fig. 1. During CPR simulation, the time flow was controlled by the nurse facilitator. Forcing functions and cues were provided by the nurse facilitator to elicit expected student behaviors.

Fig. 1. Scenario Flow

| Time  | Patient (simulator)  | Patient's wife   | Nurse facilitator   | Expected learners' behaviors  | Observed learners' behaviors  |
|-------|--|--|---|---|---|
| 0 min | No spontaneous breathing<br>BP: 40/15 mm Hg<br>Pulse: 80/min<br>ECG: PEA<br>coma | Answer the doctor's questions.<br><br>"I want to stay beside my husband."  | "Mr. Kim collapsed at home and arrived by 911. He's in cardiac arrest."<br><br>"Mr. Kim is still in the resuscitation room. What should we do? Is it okay to let her stay here?"<br><br>"I think someone should support her." | Start CPR   | Started CPR and explained its progress  |
| 3 min | BP: not measurable<br>ECG: asystole  | Massaging the patient's feet and legs.<br><br>"Don't worry, I'm helping him. This will improve blood circulation." | [10 minutes passed]<br>"Mrs. Kim keeps touching the patient's feet and legs."   | Asking the wife, "Please don't touch the patient, Why are you doing that?"<br>Explain why she should not do it. | Didn't ask why she is doing the massage, and told her to stay away from the patient because defibrillation might be needed. |
| 6 min |  | "What is going on? Is he okay?"  | [20 minutes passed]   | Answer the wife's questions.  | Answered the questions the wife asked and explained poor outcome, but not tell that the patient would expire.               |
| 9 min |  | "My son must come. Please save him until my son comes. Please give him more chest compressions."                   | [30 minutes passed]<br>"Dr. XX. We'd better stop CPR because the patient's rhythm has not returned even after 30 minutes of CPR."   | Declare death and inform the wife of his death.   | Explained poor outcome, but not informing about the patient's death.  |
|       |  |  |   | Ask why she wants that.   | Explained why CPR could not be continued.   |

BP: Blood pressure, ECG: Electrocardiogram, PEA: Pulseless electrical activity, CPR: Cardiopulmonary resuscitation.

### 3. Debriefing guide

Debriefing questions and dialogues were prepared based on the course objectives and one of the nine Models of Effective Cross-Cultural Communication and Negotiation proposed by the Association of American Medical Colleges. The “LEARN” (Learn, Explain, Acknowledge, Recommend, and Negotiate) framework was well-matched for our simulation design and objectives (Table 2) [9].

### 4. Data collection and analysis

Two medical students participated in the simulation. Two types of data were collected: survey results and discussion recordings. Surveys were conducted to understand students’ experiences, while discussions were held to improve the program. Following the scenario debriefing, the faculty led a 35-minute discussion with the students about their experience with the scenario. After the students were excused, they completed anonymous surveys collected through the online learning management system at the simulation center. The survey collected demographic information and free-text responses regarding knowledge, skills, and attitudes gained from the learning event. Furthermore, the faculty engaged in a 24-minute discussion focused on simulation design without students.

All discussions were audio recorded and transcribed using ClovaNote (NAVER, Seongnam, Korea). Survey

responses and transcriptions were analyzed via conventional content analysis by one author (K.H.P.), whereafter the other authors reviewed the results and confirmed them.

## Results

Two male medical students born and educated in the United States participated in the simulation: one identifying as local Japanese and the other as Japanese-American. They stated that this simulation differed from previous ones because it focused on learning to communicate with the patient’s family rather than diagnosing or treating the patient’s condition. They were familiar with the concepts of cultural competence, and, uniquely, during this scenario, they were able to implement such concepts. They previously felt that FPDR would distract them from good CPR care and stated that being honest with the family and asking how the family would like to communicate would be lessons learned from this scenario for application in future real-life situations. They plan to ask patients’ families how much information they want disclosed and encourage them to participate in medical decisions.

Strategies for improving the scenario emerged from faculty discussions. First, strong forcing functions and transitions should be incorporated to ensure that both students have the opportunity to communicate with the

Table 2. Debriefing Questions

| No. | Debriefing questions  |
|-----|---|
| 1.  | Did you recognize that Mrs. Kim was in the resuscitation room?                                |
| 2.  | Why was she there? What was she doing?  |
| 3.  | What did you say to Mrs. Kim? What did you want to say to her?                                |
| 4.  | Why should we ask if she wants to stay in the resuscitation room or not?                      |
| 5.  | When she wanted to stay in the resuscitation room, how did you feel?                          |
| 6.  | What should you do for her during resuscitation?  |
| 7.  | When she asked for more resuscitation attempts until the first son arrived, how did you feel? |
| 8.  | Why do you think she wanted to do that?   |
| 9.  | What are the proper methods to attend to the cultural needs of the family?                    |

family, or that the same scenario should be repeated to allow all students to experience family interaction. Before the pilot test, it was expected that two student participants would allow for sufficient spontaneous communication experience for both. However, during the pilot test, one student primarily communicated with family. Second, the timeline needed acceleration to be completed within the allocated 10 minutes. Leg massage began at the third minute of the scenario, and the students did not directly convey the patient's death to the wife; therefore, the family could not request continued CPR until the son arrived. A design modification for immediate leg massage as the scenario begins addressed this issue. Adding a defibrillation requirement would promote students' awareness of the wife's leg-massaging behavior without cues from the nurse facilitator. Third, a dedicated, standardized, and embedded participant family member is required. In this pilot study, one researcher (B.W.B.) observed the simulation and managed the debriefing. If such an observer is not available, either the standardized participant or the nurse facilitator will need to debrief. While actively participating in and facilitating the simulation, they may be unable to accurately observe the learners' performance. Therefore, the wife should be replaced by a standardized participant, and a non-participating faculty should conduct the debriefing.

## Discussion

In this pilot, a simulation scenario was developed for medical students to learn about cultural competencies during FPDR. Learners stated that they were aware of the concept of cultural competency, and this scenario allowed them to understand its practical implementation. Moore et al. [10] reported that nursing students expressed a desire for simulation programs related to diversity, equity, and

inclusion (DEI) to be more accurate and specific regarding cultural concepts such as diverse family structures and different health beliefs. In this scenario, medical students of Japanese cultural background from the United States experienced Korean family culture while communicating with a family member. This represents a relevant situation in many countries comprising people from diverse cultures.

There is a lack of research on cultural diversity or competency in Korean medical education. In Korea, the population from other cultures and foreign countries is increasing, same as the number of patients from other cultures visiting to receive medical care [11,12]. The cultural competencies of healthcare professionals, including physicians, ultimately affect patient-centered care. Roh and Nirta [13] conducted a class that allowed medical students to reflect on cultural diversity through panel discussion. This pilot program demonstrates the feasibility of a learning experience in which cultural diversity is represented and learners can apply cultural competencies in a clinical setting. Content that allows for the learning and application of DEI concepts, including cultural competency, must be considered in the Korean medical education curriculum.

This pilot study has a few limitations owing to being a single program evaluation. Based on the data analyzed herein, it would be feasible to implement an FPDR simulation program that can be repeated with multiple medical students. Furthermore, this scenario could be used for CPR simulation in other contexts where communication with patients or family members from diverse cultural backgrounds is a key learning objective.

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