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An Intensive, Simulation-Based Communication Course for Pediatric Critical Care Medicine (PCCM) Fellows

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Abstract

Objective—Effective communication among providers, families, and patients is essential in critical care, but is often inadequate in the pediatric ICU. To address the lack of communication education PCCM fellows receive, the Children's Hospital of Pittsburgh PICU developed a simulation-based communication course, Pediatric Critical Care Communication Course (PC3). PCCM trainees have limited prior training in communication and will have increased confidence in their communication skills after participating in the PC3 course.

Design—PC3 is a 3-day course taken once during fellowship featuring simulation with actors portraying family members. Prior to and after the course, fellows complete an anonymous survey asking about 1) prior instruction in communication 2) preparedness for difficult conversations, 3) attitudes about end-of-life care, and 4) course satisfaction. We compared pre- and post-course surveys using paired student's t-test.

Main Results—Most of the 38 fellows who participated over 4 years had no prior communication training in conducting a care conference (70%), providing bad news (57%), or discussing end of life options (75%). Across all four iterations of the course, fellows after the course reported increased confidence across many topics of communication, including giving bad

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news, conducting a family conference, eliciting both a family's emotional reaction to their child's illness and their concerns at the end of a child's life, discussing a child's code status, and discussing religious issues. Specifically, fellows in 2014 reported significant increases in self-perceived preparedness to provide empathic communication to families regarding many aspects of discussing critical care, end of life care and religious issues with patients' families ($p<0.05$). The majority (90%) of fellows recommended that the course be required in PCCM fellowship.

Conclusions—The PC3 course increased fellow confidence in having difficult discussions common in the PICU. Fellows highly recommend it as part of PICU education. Further work should focus on the course's impact on family satisfaction with fellow communication.

Keywords

Communication; Training; Simulation; Education; End of Life; Pediatric

INTRODUCTION

Timely and honest communication regarding diagnosis, prognosis and decision options in the intensive care setting has been widely reported to be an essential component of excellent pediatric critical care (1). This sentiment has been echoed by the American Academy of Pediatrics (AAP), which has emphasized shared-decision making and family-centered care in its pediatric clinical guidelines (2). The 2004–2005 American College of Critical Care Medicine Task Force recommended that goals of care conversations occur within 24–48 hours of a patient's arrival in the ICU (3).

While such conversations are common in intensive care medicine, they are also difficult and complex. These conversations can be even more complicated in pediatric critical care, where decisions are almost always made by family surrogates trying to determine what is in the child's 'best interest' (4). Conflicts can arise at times between parents and physicians about the patient's prognosis or what is the child's 'best interest.' (5) Indeed, recent data on communication in the PICU revealed that many parents were critical of their physicians' abilities to provide timely and clear information with an appropriately empathetic affect. The parents felt that physicians avoided difficult conversations about prognosis, gave parents a sense of false hope, and also delivered information with a cold affect, often using medical jargon rather than lay terms (6,7).

Despite this evidence, few pediatric critical care trainees receive formal training and education in communication skills. In a 2013 survey of pediatric critical care medicine fellowship programs, the majority of program directors reported that communication skills were taught indirectly via role modeling and direct observation. Only 2 out of the 6 ACGME-required communication skills were being taught by all of the responding fellowship programs (8).

At the Children's Hospital of Pittsburgh of the University of Pittsburgh Medical Center (UPMC), we designed a formal program to teach pediatric intensive care fellows communication skills in the domains of delivering difficult news and discussing goals of care and end of life issues: the Pediatric Critical Care Communication Course (PC3). Using

a model that has been successfully implemented in oncology, adult intensive care, geriatrics and most recently neonatology, our objective was to improve fellows' communications skills and increase their confidence in holding these difficult conversations. The aim of this study was to understand the fellows' baseline experience in communication skills training, elicit their attitudes towards clinical communication and its teaching, and evaluate the course's effect on confidence in their communication skills (9).

MATERIALS AND METHODS

PC3 is an intensive 3-day program that has been held in the spring every 2 years for pediatric critical care medicine (PCCM) fellows. Fellows attending the course are protected from all clinical duties - including night call - for the duration of the course, which is held offsite from the hospital. Since its inception in 2009, we have conducted PC3 four times.

The PC3 curriculum includes a review of communication literature, faculty led short didactic sessions, faculty demonstration of core communication skills, and nearly 8 hours of simulation with actors specifically trained for roles as patient parents. Our overarching course objective is to prepare our trainees for communication challenges throughout their career. This unique curriculum structure closely follows the principles of Knowles's Adult Learning Theory. The theory stipulates that adults learn best with a relevant, active and learner-centered curriculum (10). The PC3 curriculum is relevant to trainees' everyday practice. It is designed to continuously engage trainees in active learning, including open discussions, role-play sessions, and self-reflective exercises. The course is learner-centered in that trainees are encouraged to choose their own specific learning goals for each simulation scenario, as well as to control both the pace and length of role-play exercises. Faculty meet for one day each year prior to the course to review the readings, edit the cases and retrain the actors. Faculty also hold meetings at the end of each course day to evaluate course progression and identify specific learning opportunities for each fellow.

One month prior to the course, participating fellows receive the background literature, which includes reviews on communication skills in the ICU and the impact of communication on families. Seven learning modules are also included in the materials, each focusing on a core communication skill. Each individual module includes a set of learning objectives, examples of difficult conversations and tools to utilize during conversations. Table 1 lists the modules, examples of learning objectives, and at what point module skills are modeled or utilized during the 3-day course. These modules are based on those used in two previous successful training programs: Oncotalk and Critical Care Communication (C3) (11, 12). The content was modified to focus on pediatric issues by two authors (RMA, AT).

The daily schedule of the PC3 course is found in Table 2. For simulations, fellows break up into small groups of 4–5 fellows with 2–3 faculty preceptors. Prior to each simulation fellows are given details of the patient's medical course, as well as the family's social dynamics, religious beliefs and emotional state (Table 3). Prior to role-play, fellows and faculty discuss the particular learning goal of the session. During simulation sessions, fellows have the opportunity to 'time-out' during a conversation, ask for help, and retry

difficult aspects of a conversation. Following their simulation, fellows receive feedback not only from the facilitators, but also from the parent actors ‘in character’ and their peers.

The sessions are designed to progress over the three days from an initial family meeting, through the explanation of patient deterioration, to the discussion of death or limitation of life-sustaining treatment. This design simulates a realistic timeline for discussions that occur in the ICU with families of patients in similar clinical circumstances. Importantly, fellows work with the same ‘families’ each day as they progress through the timeline. Table 3 describes each scenario, the particular challenges associated with the scenario, and the daily scenario progression, with corresponding learning objectives. In addition, the final column lists the pre-course learning module to which the knowledge and skills utilized can be mapped. On the last day of the course, trainees have the opportunity for “open role play” to explore any issues not already discussed in the course.

All fellows anonymously completed pre-course, post-course, and daily surveys. The pre-course survey is administered on the first day of the course and: 1) establishes a baseline of trainee experience and training with communication skills; 2) assesses feelings of preparedness for difficult conversations; 3) assesses opinions regarding the psychological aspects of care; 4) assesses baseline attitudes about end of life care. The post-course survey, administered at the conclusion of last course day, readdresses the latter three lines of inquiry of the pre-course survey and also evaluates the fellows’ overall training experience as well as the impact of the course. Surveys feature a modified 5-point Likert scale adapted to each line of questioning. Daily surveys evaluate trainee satisfaction with the day’s content.

Surveys were in hard copy in 2009 and 2010 and online in 2012 and 2014. In 2014, fellow responses were coded so that individual responses from the pre-course survey could be paired with those on post-course surveys. Surveys were analyzed in a University of Pittsburgh IRB approved study. As our survey was anonymous and we were unable to pair respondents for years 2009, 2010, and 2012, means with standard deviation of pre and post course questions were reported. We compared pre- and post-course responses for 2014 using paired Student’s T-test. Two-sided p values <0.05 were considered statistically significant. Analysis was performed using IBM SPSS version 24 (IBM Corp., Armonk, NY).

RESULTS

A total of 38 fellows have completed the PC3 course to date. Demographics are found in Table 4. The majority of fellows had little prior training in difficult conversations, with fewer than half reporting either formal, structured training or bedside training in the following areas: explaining the severity of a child’s illness, conducting a family conference, eliciting a family’s emotional reaction to their child’s illness, discussing various treatment options including palliative care, describing the range of possible outcomes, discussing code status and discussing hospice referrals. The most commonly taught categories ‘expressing sympathy or empathy’ and ‘giving bad news’ were only formally taught to 57% and 54% of fellows, respectively. Prior communication training varied considerably from year to year, as demonstrated by a range of experience in conducting a care conference, from as low as 0% to as high as 70% of fellows in a given year.

Across all four years of the course, the self-perceived preparedness of fellows in carrying out difficult conversations for 10 specific goal skills improved after undergoing the PC3 communication course. These data are depicted in Table 5. These specific goal skills were selected as they are reflective of those also successfully evaluated by Boss and colleagues in their neonatal NC3 course. (19)

In 2014, with paired data, we were able to perform a paired t-test to evaluate changes in perceived preparedness of the 10 first and second year fellows who underwent training. Amongst these 10 fellows there was significant improvement from 'Pre-course' to 'Post-course' in self-perceived confidence levels in carrying out difficult conversations in the PICU (Table 6). Nearly all fellows would recommend the training course to other fellows (97%) and believed that the course should be a required component of PCCM training (95%). Finally, on all daily surveys, the learning tasks (didactic, role play, and simulation scenarios) were all found to be moderately useful to very useful by all trainees (Likert scale 1=not at all useful, 3= useful, 5= very useful).

DISCUSSION

PC3 is a simulation-based communication course aimed at teaching PCCM fellows advanced skills in breaking bad news, discussing end of life decisions and discussing religious or spiritual issues in the PICU. This survey-based study demonstrates that PC3 is successful in increasing fellow confidence in carrying out these complicated and difficult conversations in the PICU. In addition, the study demonstrates that such a simulation-based communication course is well received by PCCM trainees and is suggested for future PCCM fellows at the Children's Hospital of Pittsburgh of UPMC.

The course is designed in recognition that there is strong and widespread evidence that physician communication is of utmost importance to the families of patients being treated in ICUs (12). Given that parents are the primary surrogate decision makers for the majority of PICU patients, quality family communication is important not only for family satisfaction but also for patient care planning. Multiple studies have shown that pediatric intensivists often lack the appropriate skills to conduct these conversations sensitively and adeptly (1, 6, 14, 15). Pediatric critical care physicians (faculty as well as trainees) themselves often feel unprepared to have these difficult and emotion-laden conversations (16, 17).

Lack of physician training in communication may contribute to both patient dissatisfaction and physician discomfort with difficult conversations. Despite an ACGME PCCM fellowship requirement, recent surveys reflect a lack of training in communication. In an important 2014 study of American pediatric critical care fellowship program directors, the respondents (program directors for 73% of US pediatric critical care fellows) reported that 75% of ACGME required elements of communication skills and a lack of were not being taught by all responding programs. The skills that are taught are usually done via faculty role modeling (18).

Pediatric critical care training programs vary widely in terms of size, patient volume, call schedules and fellow responsibilities, making it difficult to identify all barriers to fellow

education in communication. A recent study of pediatric critical care trainees cited observation of faculty and faculty role modeling as the most common methods of communication instruction in pediatric ICUs. Although this is an important example of “hidden curricula” in clinical education, it is important to note that role modeling by faculty often occurs without the explicit intention of teaching, and so cannot be relied upon to impart the best education. In addition, trainees may not recognize faculty observation as instruction (18). In addition, any educational opportunities that rely upon direct clinical observation can be affected by the clinical work of the intensive care unit. Intensive care unit fellows are often very busy with other aspects of patient care (including procedures, patient evaluation, order entry, clinical rounds) and may miss the opportunities to participate in important but lengthy family meetings where faculty are demonstrating these vital communication skills.

To address this lack of reliable communication training, there is a growing movement to provide more formal and interactive communication instruction. PC3 was based on the successful Oncotalk communication course, which was designed specifically to train oncology fellows in delivering difficult news (11). Other successful pilot programs based on Oncotalk have been started recently in the areas of Neonatology and Adult critical care medicine (12,19). In conjunction with this movement, a growing body of literature demonstrates the efficacy of simulation-based communication training in medicine. A 2012 Australian study demonstrated that physicians completing simulation-based communication training improved clarity, empathy and pacing of communication as evaluated by objective observers (20). More recently, a Japanese randomized control trial of a simulation-based oncology communication skills training demonstrated significant improvement in communication skills for those providers who received training based on actual patient evaluations (21).

There were several limitations of this study. First, we studied a single institution and a small sample size. Although the mandatory nature of the course avoided the confounder of self-selection amongst the study’s subjects, we could not control for specific individual’s backgrounds, i.e.: experience giving bad news, religious background, communication training prior to the start of their medical careers, etc. If expanded to a larger population of trainees, future evaluations could be able to cohort trainees by such specific background experiences. Our inability to pair subjects’ pre-and post course surveys prior to 2014 was also a limitation in the evaluating tool in early years. With the use of online surveys and unique de-identified pin numbers, we are now able to conduct such paired analyses with each subsequent class of trainees. Lastly, although fellows completing PC3 demonstrate improved levels of confidence and comfort with difficult conversations, we did not evaluate the efficacy of such training on improving trainees’ communication with actual families and patients.

The course might also be difficult to generalize across the country due to the logistical challenges of holding an off-site course over three days’ time. The Children’s Hospital of UPMC Pediatric Critical Care Fellowship has a large number of trainees, so that one group of fellows is able to cover the clinical duties of those attending the program. This may not be

feasible in smaller programs. Additionally, the facility and actor fees could also be prohibitive. However, modifications such as holding the course at the hospital are possible.

CONCLUSION

In conclusion, PC3 is an effective model for improving pediatric critical care fellows' comfort and confidence with important critical care communication skills. Its implementation has been positively accepted and supported by our program, and it is now a standard feature of the fellowship education program. This successful implementation is similar to that experienced by trainee communication courses trialed in other subspecialties. Future research is still needed, however, to investigate efficacy of the course in improving trainees' bedside communication skills.

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References

1. Contro N, Larson J, Scofield S, et al. Family Perspectives on the Quality of Pediatric Palliative Care. *Archives of Pediatrics and Palliative Care*. 2002; 156(1):14–19.
2. Committee on Hospital Care. American Academy of Pediatrics. Family-centered care and the pediatrician's role. *Pediatrics*. 2003; 112(3 pt 1):691–697. [PubMed: 12949306]
3. Davidson JE, Powers K, Hedayat KM, et al. American College of Critical Care Medicine Task Force 2004–2005, Society of Critical Care Medicine. Clinical practice guidelines for support of the family in the patient-centered intensive care unit: American College of Critical Care Medicine Task Force 2004–2005. *Critical Care Medicine*. 2007; 35(2):605–622. [PubMed: 17205007]
4. Ross, LF. *Children, Families, and Health Care Decision Making*. New York: Oxford University Press; 1998.
5. Kolarik RC, Walker G, Arnold RM. Pediatric resident education in palliative care: A needs assessment. *Pediatrics*. 2006; 117(6):1949–1954. [PubMed: 16740835]
6. Meert KL, Eggly S, Pollack M, et al. the National Institute of Child Health and Human Development Collaborative Pediatric Critical Care Research Network. Parents' perspectives on physician-parent communication near the time of a child's death in the pediatric intensive care unit. *Pediatric Critical Care Medicine*. 2008 Jan; 9(1):2–7. [PubMed: 18477906]
7. Gordon C, Barton E, Meert KL, et al. The Eunice Kennedy Shriver National Institute of Child Health and Human Development Collaborative Pediatric Critical Care Research Network. Accounting for medical communication: Parents' perceptions of communicative roles and responsibilities in the pediatric intensive care unit. *Commun Med*. 2009; 6(2):177–188. [PubMed: 20635554]
8. Turner DA, Mink RB, Lee J, et al. Are Pediatric Critical Care Medicine Fellowships Teaching and Evaluating Communication and Professionalism? *Pediatric Critical Care Med*. 2013 Jun; 14(5):454–461.
9. Vitaltalk. n.d. Web. 24 Mar. 2016. Available at <http://vitaltalk.org>
10. Knowles, M. *The Modern Practice of Adult Education: From pedagogy to andragogy*. New York, NY: The Adult Education Company; 1980.
11. Back AL, Arnold RM, Baile WF, et al. Efficacy of Communication Skills Training for Giving Bad News and Discussing Transitions to Palliative Care. *Archives of Internal Medicine*. 2007; 167(5): 453–460. [PubMed: 17353492]

12. Arnold RM, Back AL, Barnato AE, et al. The Critical Care Communication Project: Improving Fellows' Communication Skills. *Journal of Critical Care*. 2015; 30:250–254. [PubMed: 25535029]
13. Thompson BT, Cox PN, Antonelli M, et al. American Thoracic Society; European Respiratory Society; European Society of Intensive Care Medicine; Society of Critical Care Medicine; Societede Reanimation de Lanque Francaise. Challenges in End-of-Life Care in the ICU: Statement of the 5th International Consensus Conference in Critical Care: Brussels, Belgium, April 2003: executive summary. *Critical Care Medicine*. 2004; 32(8):1781–4. [PubMed: 15286559]
14. Meyer EC, Ritholz MD, Burns JP, et al. Improving the Quality of End-of-Life Care in the Pediatric Intensive Care Unit: Parents' Priorities and Recommendations. *Pediatrics*. 2006; 117(3):649–657. [PubMed: 16510643]
15. Meert KL, Eggly S, Pollack M, et al. National Institute of Child Health and Human Development Collaborative Pediatric Critical Care Research Network. Parents' Perspectives Regarding of Physician-Parent Conference After Their Child's Death in the Pediatric Intensive Care Unit. *Journal of Pediatrics*. 2007; 151(1):50–55. [PubMed: 17586190]
16. You JJ, Downar J, Fowler RA, et al. Canadian Researchers at the End of Life Network (CARENET). Barriers to Goals of Care Discussions with Seriously Ill Hospitalized Patients and Their Families: A Multicenter Survey of Clinicians. *JAMA International Medicine*. 2015; 175(4): 549–56.
17. McCallister JW, Gustin JL, Wells-DiGregorio S, et al. Communication Skills Training Curriculum for Pulmonary and Critical Care Fellows. *Annals of the American Thoracic Society*. 2015; 12(4): 520–525. [PubMed: 25734699]
18. Turner DA, Fleming GM, Winkler M, et al. Professionalism and Communication Education in Pediatric Critical Care Medicine: The Learner Perspective. *Academic Pediatrics*. 2015; 15(4):380–5. [PubMed: 25937515]
19. Boss RD, Urban A, Barnett MD, et al. Neonatal Critical Care Communication (NC3): Training NICU Physicians and Nurse Practitioners. *Journal of Perinatology*. 2013; 33:642–646. [PubMed: 23448940]
20. Clayton JM, Butow PN, Waters A, et al. Evaluation of a Novel Individualized Communication-Skills Training Intervention to Improve Doctors' Confidence and Skills in End of Life Communication. *Palliative Medicine*. 2013; 27(3):235–243.
21. Fujimori M, Shirai Y, Asai M, et al. Effect of Communication Skills Training Program for Oncologists Based on Patient Preferences for Communication When Receiving Bad News: A Randomized Control Trial. *Journal of Clinical Oncology*. 2014; 32(20):2166–2172. [PubMed: 24912901]

Table 1

Learning modules with associated learning objectives

MODULE	Fundamental Communication Skills	Giving Bad News	Determining Goals of Care	Talking about Resuscitation Preferences	Conducting a Family Conference	Forgoing Life Sustaining Treatment	Navigating Conflict with Families
Learning Objectives	-List principles for improving doctor-patient communication -Describe the “respond to emotion” principle	-Define bad news -Identify barriers to delivering bad news	-Describe a model for discussing goals of care -List several questions to help surrogates think about best actions for their child	-Describe 4 myths of discussing resuscitation preferences -Describe why discussions should focus on goals rather than therapy	-Explain purpose of family meeting -Explain cognitive road map for holding these conferences	-Describe major challenges and the process when discussing forgoing life sustaining treatment	-Be aware of burden of responsibility and guilt in making life support decisions -Respond empathetically to recovery hopes without compromising medical decisions
Tools described	- “Ask-Tell-Ask” Principle - “Tell me more” principle	Six communication steps “SPIKES”	-Four steps for goals of care conversation	-Six step approach to discussing resuscitation preferences	-Roadmap for holding family conference -Tools to combat meeting challenges	-8 steps to discussing decisions to forgo life sustaining therapies	-Skills to deal with family emotions
Skills demonstrated and practiced	-Day 1: Faculty didactic and role play and learners utilize tools in scenarios	Day 1: Faculty didactic and role play Days 1–3: Learners utilize SPIKES in each scenario	Day 2: Faculty didactic and role play Days 2,3: Learner utilize 4 steps in scenarios	Day 3: Learners practice approach in scenarios	Days 1–3: Learners utilize skills in all scenarios	Day 3: Faculty didactic and role play and Learner utilizes tools in scenarios	Day 2: Faculty didactic -Day 2, 3: Learners utilize skills in scenarios

Table 2

Example of a Course Day's Schedule

MORNING		AFTERNOON	
Session Type	Length	Session Type	Length
Didactic	20 minutes	Didactic	20 minutes
Faculty Modeling	10 minutes	Faculty Modeling	10 minutes
Break	10 minutes	Break	10 minutes
Simulation	2.5 hours	Simulation	2 hours
Reflection Exercise	30 minutes	Break	10 minutes
Lunch	1 hour	Reflection Exercise	30 minutes

Table 3

Scenario challenges, progression, and learning objectives

Scenario	Challenge	Day 1		Day 2		Day 3	
		Progression	Learning Objectives	Progression	Learning Objectives	Progression	Learning Objectives
Infant immediately post out-of-hospital cardiac arrest, now with hypoxic ischemic brain injury	-Young parents with assertive grandmother -Family holds deep religious beliefs, waiting for a miracle	Infant admitted to PICU, sluggish pupils and occasional breaths are the only signs of neurologic function	-Assess family understanding of situation -Update family on infant condition -Attend to their emotions	Infant now with irregular respiratory efforts, sluggish pupils and now with multi system organ failure	-Assess family understanding of situation Discuss goals of therapy as infant condition has worsened	Patient does not meet brain death criteria, has occasional respirations but cannot sustain ventilation. Profound neurologic injury is certain	-Discuss forgoing support versus tracheostomy and home mechanical ventilation
Child with refractory oncologic disease and multiorgan failure in the PICU	-Family belief that the patient will recover, as she has many times before	Admitted to PICU with shock, progressive respiratory distress and requiring vasoactive medications	-Assess family understanding of situation -Update family on condition -Attend to family emotion	Patient intubated with ARDS and on increasing vasoactive medications, bone marrow biopsy shows relapse with no further curative therapy available	-Assess family understanding of situation -Discuss goals of therapy with worsening condition and return of leukemia	Continued patient deterioration, bronchoscopy shows fungal disease, and she now has bleeding from endotracheal tube	-Discuss goals of therapy -Discuss forgoing life sustaining treatments
Adolescent with a traumatic brain injury following an alcohol-induced motor vehicle accident	-Father is hostile toward care team -Parents recently divorced with antagonistic relationship	Adolescent admitted to PICU, intubated, ICP monitor placed with elevated intracranial pressures	-Give mom bad news of accident -Balance severity with degree of optimism -Attend to her emotions	Patient had ICP spikes and required increased therapies overnight, despite this, CT scan now shows herniation and progression to brain death expected	-Deliver bad news about deterioration and possible brain death	Patient unresponsive to all ICP therapies, exam and EEG consistent with brain death	-Tell family patient is brain dead -Address the certainty of this condition as compared to prior state

Table 4

Pediatric Critical Care Fellow Demographics

Demographic Category	Population by Year				Total Population per category		Percentage of Total Population
	2009	2010	2012	2014			
Sex							
Male	5	4	6	3	18		47%
Female	4	5	4	7	20		53%
Year of Training							
1 st Year	0	0	5	5	10		26%
2 nd Year	5	6	5	5	21		55%
3 rd Year	3	3	0	0	6		16%
Instructor	1	0	0	0	1		3%
Ethnicity							
Caucasian	7	5	7	8	27		71%
African American	0	0	0	0	0		0%
Asian or Pacific Islander	1	1	1	1	4		11%
American Indian or Native Alaskan	0	0	1	0	1		3%
East Indian/Pakistani	0	0	0	1	1		3%
Hispanic/Latino	0	0	0	0	0		0%
Mixed Heritage	0	0	1	0	1		3%
Other	1	2	0	0	3		8%
Religion							

Demographic Category	Population by Year				Total Population per category	Percentage of Total Population
	2009	2010	2012	2014		
Protestant	3	2	2	4	11	29%
Catholic	3	2	4	3	12	31%
Jewish	1	1	0	1	3	8%
Muslim	0	1	0	0	1	3%
Other	2	3	4	2	11	29%
Protestant	3	2	2	4	11	29%

Table 5

Perceived Preparedness in Core Communication Skills: 2009, 2010, 2012, 2014

How well prepared do you feel you are to:	Pre-Course Mean (Std Dev)* N =38	Post-Course Mean (Std Dev)* N=36**	Mean Difference
Give bad news to a family about their child's illness?	3 (.87)	4.1 (.54)	1.1
Conduct a family conference?	2.6 (1.06)	3.7 (.68)	1.1
Elicit a family's emotional reaction to their child's illness?	2.9 (1.11)	4.2 (.58)	1.3
Express empathy?	3.6 (.89)	4.4 (.55)	.8
Discuss various treatment options, including palliative care with families?	2.7 (.87)	3.8 (.68)	1.1
Respond to families who deny the seriousness of their child's illness?	2.3 (.94)	3.8 (.51)	1.5
Respond to family members who want treatments that you believe are not indicated?	2.6 (.98)	3.8 (.70)	1.2
Discuss code status with a family member?	2.8 (1.0)	3.7 (.76)	.9
Discuss religious or spiritual issues with families?	2.7 (.97)	3.5 (.77)	.8
Discuss a family's hopes for their child in the ICU?	2.8 (.98)	4.2 (.68)	1.4

* Likert Scale: 1= not well prepared, 5= very well prepared

** One less respondent completed post course survey in years 2010 and 2012

Table 6

Perceived Preparedness in Core Communication Skills, 2014

How well prepared do you feel you are to:	Pre-Course Mean (1–5)* N=10	Post-Course Mean (1–5)* N=10	P-Value
Give bad news about a child's illness?	2.9	4.2	<.01
Conduct a family conference?	2.5	3.6	.02
Elicit a family's emotional reaction to their child's illness?	2.9	4.3	.01
Express empathy?	3.8	4.6	.04
Discuss various treatment options, including palliative care, with the families of the critically ill?	2.7	3.8	<.01
Respond to families who deny the severity of their child's illness?	2.2	3.7	<.01
Discuss discontinuing intensive care treatment?	2.6	4	<.01
Discuss code status with a family member?	2.7	3.3	.02
How well prepared do you feel you are to discuss hospice referral with a family?	2.6	3.2	<.01
Discuss religious or spiritual issues with a family?	3	3.3	.3
Discuss a family's hopes for their child in the PICU?	3	4.4	<.01
Elicit a family's concerns at the end of a child's life?	3	4.4	<.01

* Likert scale from 1 (low) to 5 (high)