Resilience Curriculum Improves Skills of Pediatric Fellows in Delivery of Difficult News

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ABSTRACT

BACKGROUND: Delivering difficult news to families is an essential but challenging skill. Pediatric trainees report limited confidence in this skill and perform poorly in simulation. We implemented the American Academy of Pediatrics (AAP) Resilience Curriculum and evaluated performance and self-efficacy in delivering difficult news.

METHODS: The AAP Resilience Curriculum, using the SPIKES (Set-up, Perception, Invitation, Knowledge, Empathy, and Summary) framework, was taught to pediatric fellows. Fellows' performance during simulations with standardized patients before and after curriculum implementation was scored with a SPIKES checklist. Pre- and post-test surveys assessed self-efficacy in delivering difficult news.

RESULTS: Fellows (n=19) significantly improved their performance in delivering difficult news, increasing the median SPIKES checklist scores from 78% to 90% completion (P<0.001). Pediatric fellows (n=35) reported improved confidence from 3.4/5 to 3.9 (P=0.01).

CONCLUSIONS: Pediatric fellows demonstrated significant improvement in their ability to deliver difficult news during a simulated patient encounter and reported increased self-efficacy in delivering difficult news.

KEYWORDS: medical education, difficult news, simulation, standardized patients, pediatric fellows

INTRODUCTION

Delivering difficult news, or "information likely to seriously affect the patient's view of their future," to families and their children is a universal experience in pediatrics.[1] As such, the Accreditation Council for Graduate Medical Education expects pediatric trainees to be competent in effective and empathic communication with patients and families.[2] A study by Sastre et al found that the patient acceptability of news disclosure was determined by the method of delivery – specifically, the quality of the information and emotional supportiveness — regardless of the seriousness of the news.[3] Despite the need for competent disclosure of information, clinicians report anxiety and dread when discussing serious diagnoses and death, with 86% of trainees in one study reporting some level of stress.[4] Physician apprehension in regard to this subject may, in part, be due to a lack of education, as pediatric trainees at all levels report minimal preparation for discussing bad news and life-threatening illness.[5-9]

To improve physician-patient communication in disclosing unfavorable information, several educational interventions have demonstrated improved self-efficacy or performance in simulation in delivering difficult news.[9-11] However, these interventions were largely locally developed and tested, without broad dissemination.[10-13] In 2016, an American Academy of Pediatrics (AAP) working group published the Resilience Curriculum prior to assessment of its impact to address pressing pediatric trainee educational needs, including delivery of difficult news.[14] The current study evaluated the AAP Resilience Curriculum's impact on pediatric subspecialty fellow performance and self-efficacy with delivering difficult news.

METHODS

Research Design

We implemented the AAP Resilience Curriculum, Part B, within the Yale Pediatric Fellowships Joint Curriculum as a two-part series.[15] We used a quantitative research design to asses both performance during the delivery of difficult news in a simulation by Observed Structured Clinical Examinations (OSCE) with a standardized patient and self-efficacy before and after the course. The study was deemed exempt from oversight by the Yale Institutional Review Board.

All 49 pediatric fellows in 11 pediatric fellowship programs within the Yale School of Medicine were eligible to participate, except for one fellow who led the study. Participation in OSCEs was not a prerequisite for participation in the educational activities. The study took place at Yale New Haven Children's Hospital, a 212-bed academic institution.

Curriculum Description

The AAP Resilience Curriculum (Part B) employs the SPIKES (Setup/Staging, Perception, Invitation, Knowledge, Empathy/Emotion, and Strategy/Summary) framework, initially developed in adult oncology by Baile and Buckman.[1,15] SPIKES provides a series of recommended steps to perform when disclosing difficult news to patients and families.

Pediatric fellows participated in the curriculum as part of their weekly one-hour multispecialty fellows' conference, taught by one of the investigators, TM. The first session introduced the SPIKES model through an interactive didactic and a role modeling demonstration, in which attending physicians acted out both an effective and a poor example of news delivery, notifying a parent of the unexpected death of their child. One month later, fellows participated in a second session of role plays and reflection.

Simulation Protocol

Prior to the implementation of the curriculum, we conducted pre-test OSCEs. We adapted two Resilience Curriculum role play scenarios into simulation cases. In each case, a child had died suddenly and unexpectedly from an accidental cause and the physician must inform a parent (SIDS Case) or a grandparent (Choking Case) that the child has died. Two standardized patients were hired and trained by TM and the Yale School of Medicine Teaching and Learning Center. During each session, the cases were alternated to ensure equal occurrence of each, and fellows were scheduled according to their availability. The post OSCE occurred two-three weeks after educational sessions were completed, three months after the pre-assessment. Post-test performance was assessed with the other case, not previously encountered by the participant. The simulations were videotaped for later evaluation. After completion of the post OSCE, the course instructor conducted a short individual debrief with each participant.

Data Collection and Assessment

Two different raters used two different measures to assess performance. An in-person research assistant rated fellows in real time, while sitting in the room during the OSCEs. Additionally, a trained fourth-year medicine-pediatrics resident reviewed the videos and scored performance post-hoc, blinded to whether data were from the pre- or post-test. They scored performance using a SPIKES checklist previously published by Tobler et al, which includes 17 items anchored on the SPIKES framework.[11] The items were scored as follows: 0 – not done or inadequate, 1 – adequate, and 2 – good. They also evaluated overall communication skill, using the Mini-Master Interview Rating Scale (MMIRS), shortened to nine questions from the full-length 27-question MIRS.[16] Drs. Talwalkar and Ellman and colleagues at the Yale School of Medicine previously developed the shortened version of the MIRS to test senior medical students in advanced communication OSCEs. The MMIRS was scored on a 5-point Likert scale, anchored on specific descriptions of behavior for each item.

Fellows rated their baseline self-efficacy with a survey immediately before the initial seminar. They completed post self-efficacy surveys immediately after the role play session. Demographic information collected included post-graduate year (PGY) of training, gender, age, previous training in delivering difficult news, and location of that training. A 13-question survey assessed self-efficacy, also previously published by Tobler et al.[11] We expanded the survey stem to ask participants to rate the domains of knowledge, confidence, and comfort separately for each item. The items themselves were unchanged. Fellows scored themselves on a Likert scale of 1 to 5, with 1 – strongly disagree to 5 – strongly agree, for each item in each domain.

Analysis

The SPIKES checklist percentages and MMIRS average score for the pre- and post-OSCEs were analyzed by the Wilcoxon signed rank test. Factors that could impact the outcome, including age, gender, PGY, prior training, and OSCE case 1 versus case 2, were analyzed using the Pearson correlation coefficient. The agreement between raters was evaluated using intraclass correlation coefficient. The relationship between performance and self-efficacy was analyzed using the Pearson correlation coefficient. For all analyses, the level of significance was set for 0.05. Analysis was conducted using SPPS version 24.0.

RESULTS

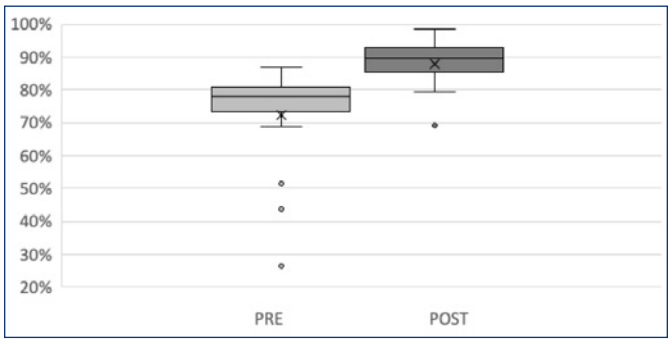
Performance in Simulation

Of 48 eligible subjects, 24 volunteered for the simulations, forming the simulation cohort. Given scheduling constraints, 21 completed the pre OSCE and 22 completed the post OSCE, with 19 finishing both pre- and post-OSCEs. Of the 19 paired assessments, the pre-test median completion of the SPIKES checklist significantly rose from 78% to 90% (Inter-quartile range [IQR] pre: 75–81%, post: 85–92%; p-value [*P*]<0.001; **Figure 1A**). The MMIRS pre-test group median of individual average scores significantly increased from 4.2 to 4.6 (IQR pre: 4.0–4.3, post: 4.4–4.7; p<0.001; **Figure 1B**). Gender, PGY, prior training, and OSCE case did not significantly correlate with the outcome. The inter-rater agreement was moderate for both metrics, with intra-class correlation (ICC) for absolute agreement and consistency for SPIKES of 0.69, and 0.72, respectively.[17] The MMIRS ICCs were 0.67, and 0.72, respectively. In the debriefing following the post-test OSCE, fellows universally expressed appreciation for the opportunity to practice delivering difficult news with standardized patients, instead of with real patients.

Self-Efficacy

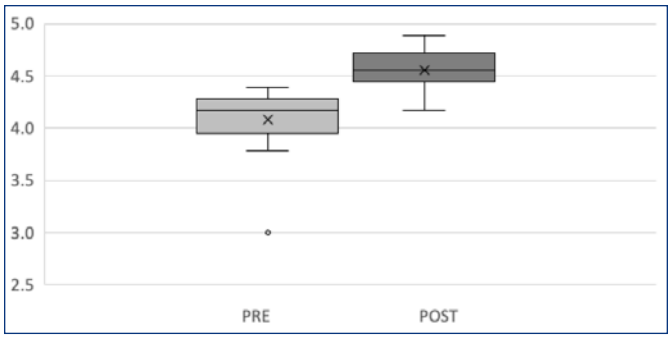
Knowledge, confidence, and comfort in delivering difficult news increased significantly for the 35 fellows who completed the self-efficacy survey during participation in the didactics. Knowledge increased significantly from a mean of 3.5/5 to 4.2 (Confidence interval [CI] pre: 3.4–3.7, post: 4–4.4; $P \leq 0.001$), confidence rose from 3.4 to 3.9 (CI pre: 3.2–3.6, post: 3.7–4.0; $P=0.01$), and comfort improved from 3.3

Figure 1A. Distribution of Fellow Simulation Performance
SPIKES Checklist Percentage Complete (n=19)



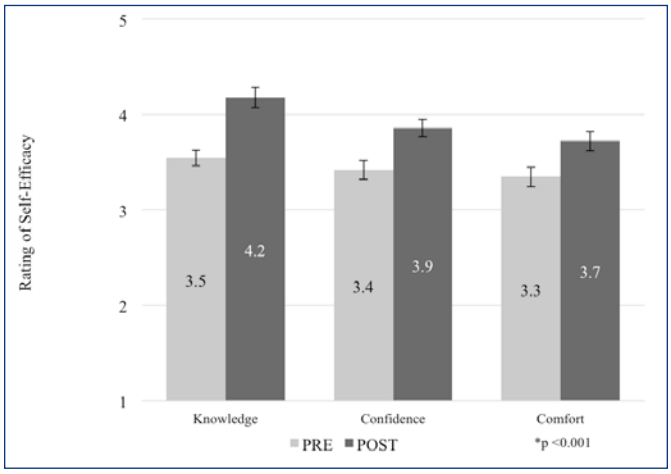
The SPIKES checklist (A) contains 17 items, anchored on behaviors in the SPIKES framework. It is scored: 0 – not done, 1 – partially done, and 2 – done well. There was a statistically significant difference between pre- and post-testing.

Figure 1B. MMIRS Average Composite Score (n=19)



The MMIRS (B) contains 9 items scored on a 5-point Likert scale rating communication during patient-centered interviewing. The median for the group is displayed above. There was a statistically significant difference between pre- and post-testing.

Figure 2. Self-Efficacy of Trainees in Delivering Difficult News (n = 35)



The self-efficacy survey consisted of 13 questions regarding different aspects of delivering difficult news. Each item was scored on a Likert scale of 1 to 5, with 1 – strongly disagree, to 3 – cannot agree or disagree, to 5 – strongly agree. An average score for each domain, of knowledge, confidence, and comfort was calculated for the group.

to 3.7 (CI pre: 3.2–3.5, post: 3.5–3.9; $P<0.01$). When plotting the change in specific individuals, it was noted that a few demonstrated a decrease in self-efficacy from pre- to post-test (**Figure 2**). Additionally, when analyzing different types of communication skills within delivering difficult news, it was noted that trainees report more comfort with items related to displaying empathy than with those pertaining to managing emotions.

Performance and Self-Efficacy

Twenty (20) of the 24 fellows from the simulation cohort had a self-efficacy survey to pair with their simulation performance data from either pre-didactic, post-didactic, or both. Their self-efficacy data were compared to their performance in the simulations and it was found that the SPIKES checklist score significantly correlated with the total self-efficacy score (R = 0.396, $P=0.011$) on both pre- and post-data sets, although it is a weak to moderate positive relationship. The MMIRS score correlation with self-efficacy approached, but did not cross, the threshold for significance (R = 0.312, $P=0.050$).

DISCUSSION

The significant improvement in performance and reported self-efficacy of pediatric fellows demonstrates the promise of effectiveness of the AAP Resilience Curriculum at advancing the preparation of pediatric fellows for delivering difficult news to patients and families. To our knowledge, the current study is the first to validate the AAP Resilience Curriculum. This nationally available curriculum provides open access to a toolkit that can be adapted to meet local communication training needs.[15]

Unexpectedly, prior training did not have a significant impact on performance, a minority of individuals reported decreased self-efficacy following training, and performance and self-efficacy were correlated. The finding that prior training did not significantly impact the baseline performance of fellows indicates either a decay in the effect of such prior training – given that most reported training occurred in medical school – or lack of effectiveness of the training received. Admittedly, this study was underpowered to detect the impact of prior training on performance.

The decrease in self-efficacy from pre- to post-test may be due to the Dunning-Kruger phenomena of poor insight in the unskilled, whereby "paradoxically, improving the skills of participants, and thus increasing their metacognitive competence, helped them recognize the limitations of their abilities."[18] These individuals may have been overly confident in their skills in delivery of difficult news, and, after receiving training and reflecting on their own skills, realized that they were not as prepared as they had initially thought. Additionally, this phenomenon may also explain why prior

training did not have a significant impact, as those with more training may have better recognition of what they lack.

In counterpoint to those individuals with poor initial insight that improves with education, the correlation between performance and self-efficacy among the fellows is notable. Self-efficacy is generally considered a less robust measure of educational effectiveness according to Kirkpatrick's Model, and physicians have been shown to be poor self-assessors.[19,20] However, this correlation indicates some merit in using self-efficacy as a measure of curricular assessment for education, potentially specific to communication skills. Additionally, given the considerable stress experienced by trainees when delivering difficult news, self-efficacy may impact communication skill acquisition.[4] As such, an intervention that results in increased confidence and comfort is valuable.

Modifying the curriculum using simulation added value to the learners, as they unanimously expressed their appreciation for the opportunity to practice giving difficult news to a standardized patient in the lower stakes environment of simulation. Further, in regard to trainee needs, it is notable that participants report the lowest self-efficacy in managing emotions when delivering difficult news. This finding suggests that implementation of this curriculum should explicitly address and expand upon the emotionally challenging aspects of delivering difficult news while teaching the SPIKES model, which is available in other portions of the Resilience Curriculum.

This study was limited by the single center design and by the fact that individuals self-selected to participate. This potential selection bias may have influenced the results by including more engaged and motivated learners. Additionally, participation was impacted by trainee schedules. The inherent challenge of full saturation of a curriculum among busy trainees may be addressed by including this training in orientation, or by using previously protected didactic time for the simulation portion of the curriculum. Finally, we do not know if these effects in simulation translate into improved delivery of difficult news to patients and their families. Further study into how this training affects the actual experience of families may be amenable to qualitative study.

CONCLUSION

Pediatric trainees demonstrated significant improvements in observable skill and self-efficacy in delivering difficult news after participation in a course based on the AAP Resiliency Curriculum. Continuation of this curriculum in the annual fellowship curriculum is essential. Additionally, implementation of similar didactic and simulation-based curricula at the regional level during pediatric critical care medicine bootcamps could serve to start addressing a critical deficit in pediatric subspecialty training.

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