

Interim Analysis of the Evaluation of the Impact of the Fundamental Critical Care Support Course on Attitudes Towards Interprofessional Education and Care as well as Provider Comfort with Critical Illness

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Introduction

Multidisciplinary critical care education is a potentially powerful tool both for improving the care of critically ill patients as well as fostering a quality multidisciplinary approach towards patient care. The Fundamental Critical Care Support (FCCS) Course is a two day curriculum in the basics of identification and management of patients with critical illness. Locally this course is wide offered to health care practitioners of all disciplines. Though used internationally, little formal work has been done to evaluate the effectiveness of the FCCS course content. Our goal was to assess the effectiveness of the FCCS course in changing attitudes towards interdisciplinary critical care and increasing provider comfort in evaluating and treating patients with critical illness.

Methods

Students enrolled locally in the FCCS were surveyed at three times frames, immediately pre-course, immediately post course and three months post-course. Information was collected regarding demographics as well as comfort levels in identifying and managing patients with various aspects of critical illness using a Likert scale. Periods assessed included pre-course, post-course, retrospective pre-course and three month follow-up. Attitudes towards interprofessional care were evaluated using the Student Perceptions of Interprofessional Clinical Education-Revised Instrument version 2 (SPICE-R2) tool. Paper surveys were used in the pre-course period, post-course and follow-up surveys were administered electronically using the REDCap system. Random drawings for a small financial incentive were offered to encourage participation. Data analysis was performed using the R Statistics Package using paired t-tests. The study was approved by the IRB at Carilion Clinic.

Results

A preliminary data analysis was performed for all students locally completing in the class between May 2018 and September 2018. A total of 77 of 78 (98.7%) course participants enrolled in the study and submitted the pre-course survey, of which 75 of 77 (97.4%) were complete. The post-course survey was completed by 53 of 77 (68.8%) of the enrolled subjects. Three month follow up surveys have been completed by 11 participants so far (55% of those eligible). Course and study participants thus far are predominately physicians and nurses. Changes in attitudes towards Interprofessional Education and Care are evaluated in Table 1. Confidence in critical care assessment and management are assessed in Table 2. Basic subgroup analysis for physician vs nursing participants was also performed (Table 3).

Table 1 – Attitudes towards Interprofessional Education

Spice-R2 All Participants			
	Pre-Course Mean	Post-Course Mean	Pre vs Post
T Enhance Education	4.312	4.400	p=0.2281
R Clear Roles	4.208	4.255	p=0.5454
O Patient Satisfaction	4.390	4.382	p=0.8409
T Enhance Ability to Work as Team	4.273	4.418	p=0.5607
R Knowledge of Training Requirements	3.558	4.036	p<0.0001
O Reduce Healthcare Costs	3.714	4.056	p=0.0074
T Enhance Colaborative Relationships	4.545	4.519	p=0.6379
R Understand Roles of Others	4.104	4.148	p=0.8296
O Patient Centered Care	4.338	4.407	p=0.1667
T Understand Team Roles	4.519	4.500	p=0.4063
O Domain	12.440	12.830	p=0.0509
T Domain	17.650	17.830	p=0.9566
R Domain	11.870	12.440	p=0.0035
Total Analysis	41.960	43.110	p=0.0347

Table 2 – Confidence in Critical Care Diagnosis and Management

Confidence - All Participants					
	Pre-Course Mean	Retropective Pre-Course Mean	Pre vs Retrospect	Post-Course Mean	Pre vs Post
Critical Illness	3.078	2.945	p=0.2357	3.727	p<0.0001
Pediatric Critical Illness	1.896	2.036	p=0.2334	2.818	p<0.0001
Respiratory Failure	2.882	2.727	p=0.2677	3.673	p<0.0001
Sepsis	3.325	3.127	p=0.3069	3.855	p<0.0001
Shock	3.169	3.109	p=1.000	3.855	p<0.0001
Neurologic Illness	2.675	2.600	p=0.7356	3.455	p<0.0001
Trauma	2.636	2.709	p=0.5928	3.527	p<0.0001
Electrolyte and Metabolic	3.065	2.964	p=0.767	3.855	p<0.0001
Pregnancy	1.727	1.909	p=0.0164	3.036	p<0.0001
Infections	3.052	3.091	p=0.1841	3.891	p<0.0001
Ethics	3.273	3.091	p=0.311	3.818	p<0.0001
Total Analysis	30.910	30.310	p=0.9672	39.510	p<0.0001

Results

Table 3 – Analysis of Nurse vs Physician Critical Care Confidence

	Confidence – Nurse vs Physician								
	Pre-Course		Retrospective Pre Course		Post Course				
	Nurse Mean	Physician Mean	Pre Wilcoxon	Nurse Mean	Physician Mean	RetPre	Nurse Mean	Physician Mean	Post
Critical Illness	3.714	2.756	p<0.0001	3.571	2.559	p<0.0007	4.214	3.441	p<0.0052
Pediatric Critical Illness	1.905	1.778	p=0.699	2.000	1.912	p=0.718	2.643	2.794	p=0.618
Respiratory Failure	3.667	2.444	p<0.0001	3.357	2.412	p<0.0013	4.071	3.500	p<0.0240
Sepsis	3.905	3.044	p<0.0005	3.714	2.794	p<0.0034	4.357	3.588	p<0.0018
Shock	3.762	2.867	p<0.0003	3.643	2.735	p<0.0067	4.357	3.588	p<0.0030
Neurologic Illness	3.095	2.444	p<0.0022	2.929	2.324	p<0.0336	3.643	3.324	p=0.2933
Trauma	2.714	2.538	p<0.2912	2.643	2.559	p<0.7821	3.714	3.412	p=0.1894
Electrolyte and Metabolic	3.619	2.800	p<0.0010	3.714	2.618	p<0.0001	4.357	3.559	p<0.0016
Pregnancy	1.667	1.667	p=0.9758	1.857	1.853	p=0.9604	3.071	2.941	p=0.7315
Infections	3.619	2.756	p<0.0006	3.500	2.765	p<0.0151	4.357	3.618	p<0.0022
Ethics	3.381	3.222	p<0.0471	3.500	2.853	p<0.0259	4.143	3.618	p=0.0570
Total Analysis	35.050	28.310	p<0.0005	34.430	27.380	p<0.0059	42.930	37.380	p<0.0185

Conclusions/ Future Directions

Analysis of the effect of multidisciplinary critical care education using the FCCS course on interprofessional education and care demonstrates an overall high pre-course attitude, but with improvement in some domains after course completion. Confidence in critical care assessment and management increased in all domains, with little change between the pre-course and retrospective pre-course scores – indicating an accurate self-assessment in the pre-course period. Basic subgroup analysis between nurse and physician participants demonstrates significant differences between nursing and physicians in confidence with critical care assessment and management. This likely relates to the level of training, practice setting and time in practice, however further analysis is needed.

Future plan is to continue enrollment in the study for additional 15 months with a goal of approximately 300-350 total subjects. Once adequate enrollment is achieved – further subgroup analysis is planned to assess the effects of level of training, years in practice, primary profession, physician specialty and practice setting. In addition, we will develop a simulation-based assessment to further quantify participants ability to assess and manage patients with critical illness.