

## Development of an Anesthesiology Residency Critical Care Content Outline Utilizing the Delphi Method

### Purpose:

Critical care education and training is an important component of residency training in Anesthesiology although there is no currently accepted national standardized curriculum. The Delphi process is a recognized method for establishing consensus in medical education.

### Objective:

Given the variability in critical care experiences and education across residency programs, we believe a standardized critical care curriculum with guidance on timing of delivery is needed. The initial step is the development of a content outline.

### Methods:

We used a modified Delphi process via national expert consensus to identify critical care topics that should be included in an Anesthesiology residency curriculum. The initial list was generated from the ACGME Program Requirements for Graduate Medical Education in Anesthesiology and the American Board of Anesthesiology content outline for board certification. The panel was recruited by email from the Society of Critical Care Anesthesiologists and the Society of Academic Associations of Anesthesiology and Perioperative Medicine. Surveys were sent to participants using Survey Monkey and topics were rated on a 9-point Likert scale (1= not important, 9 = mandatory). We planned for 3 survey iterations with inclusion consensus predefined as  $\geq 75\%$  rating the topic as very important to mandatory (Likert scale 7- 9). Topics with  $> 80\%$  consensus were removed from subsequent surveys and included in the final list, and topics with  $< 50\%$  consensus were removed from subsequent iterations. Panelists could suggest topics in the first two rounds. Panelists were asked to select an ideal timeframe to deliver content during residency (Foundational/Early Residency, Intermediate/Mid Residency, Advanced/Late Residency). Responses were reported using statistical mode and IQR. We avoided inclusion of specific post-graduate (PGY) or clinical anesthesia (CA) year definitions due to differences in categorical versus advanced-year residency programs and rotation schedules.

### Results:

One hundred fifty-eight expert panelists participated in the initial survey (October 2020). One hundred sixteen (73%) completed the second (February 2021) and third (June 2021) iterations. Panelists included academic Anesthesiology critical care medicine faculty, Anesthesiology faculty with educational leadership roles, Anesthesiology Critical Care Medicine fellows, and third year (CA-3) Anesthesiology residents. The majority completed core Anesthesiology and subspecialty critical care medicine training (65%) and/or had formal roles in medical education (55%). Twenty-six percent of responders were currently in training. Of 135 initial topics, 58 topics reached consensus for inclusion. Consensus topics, consensus percentages, and recommended time for delivery during residency are included in Table 1. Topics not meeting inclusion consensus are listed in Table 2 with the percentage of respondents who recommended inclusion. 23 additional topics emerged from feedback in the first survey. No additional topics were suggested in subsequent iterations. 9/23 new topics (43%) reached consensus. 50/58 (86%) topics which reached consensus for inclusion were recommend for early residency delivery. The other 8 topics which reached consensus were recommended for middle of residency delivery.

## Conclusions:

Using the Delphi method, we developed a content outline for a standardized critical care curriculum for Anesthesiology residents including highly recommended knowledge topics and procedural skills and timing for inclusion. This content outline provides the first step for curriculum development.