

Surgical critical care: Is work–life expectancy increasing? An analysis of American Board of Surgery recertification rates across subspecialties

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ABSTRACT

The practice of surgical critical care (SCC) has traditionally necessitated additional in-house, extended night and weekend clinical commitments, which can be viewed as less desirable for many surgeons. Therefore, the authors have observed that some SCC surgeons elect to transition their practice to focus solely on general surgery (GS) rather than continuing practicing both SCC and GS. We hypothesized that surgeons with a practice focused on SCC are more likely to make the transition to a GS practice than those who have certification in other subspecialties that are certified through the American Board of Surgery.

BACKGROUND

The practice of surgical critical care (SCC) has traditionally necessitated additional in-house, extended night and weekend clinical commitments, which can be viewed as less desirable for many surgeons. Therefore, the authors have observed that some SCC surgeons elect to transition their practice to focus solely on general surgery (GS) rather than continuing practicing both SCC and GS. We hypothesized that surgeons with a practice focused on SCC are more likely to make the transition to a GS practice than those who have certification in other subspecialties that are certified through the American Board of Surgery (ABS).

METHODS

The study is a retrospective review of recertification rates in GS, pediatric surgery (PS), vascular surgery (VS) and SCC. Deidentified data from the ABS from 1976 to 2018 were reviewed. These data included gender, initial certification, year of initial certification in GS and subspecialty, recertification at 10 and 20 years on each subspecialty, if multiple, year of retirement and international medical Graduate status.

Surgeons with certification in multiple subspecialties were excluded from analysis due to inability to determine subspecialty focus.

Recertification rates were compared between PS, VS and SCC excluding those surgeons who obtained initial certification prior to 1994 as that is the year that it became necessary to complete SCC fellowship training to obtain added qualifications in SCC.

Four groups were created in 4-year increments between 1994 and 2009 to look for trends over

time. Statistical significance was set as $p < 0.05$ and Analysis of variance (ANOVA) using commercially available SPSS software and Microsoft Excel for Mac V.16.61.1 were used. We compared the 10-year and the 20-year recertification rate between each subspecialty and between male and female surgeons. Only those who obtained initial certification between 1994 and 1997 were analyzed for 20-year recertification.

Institutional Review Board and ABS research committee approval were obtained for this study.

RESULTS

Data records were available for a total of 42 731 general surgeons certified by the ABS from 1976 to 2018. Out of those, 16 034 (37.5%) were certified in GS between 1994 and 2009. When looking into each of the groups of interest, we found that 1362 surgeons had been certified in SCC, 1529 in VS and 464 in PS during that period of time.

A total of 2848 met the inclusion criteria and were included in the final analysis. There were 1068 (37.5%), 378 (13.2%) and 1402 (49.2%) within the SCC, PS and VS groups, respectively.

We compared the 10-year and the 20-year recertification rate between each subspecialty and between genders. To allow enough time for the recertification process, only those who obtained initial certification between 1994 and 1997 were analyzed for 20-year recertification.

For the 10-year recertification rate, SCC surgeons started in 1994 with a 77% recertification rate and steadily increased until 2001, with a subsequent plateau at 90% ($p < 0.001$). In contrast, VS had a persistently high recertification rate above 93%, and PS is fluctuating between 96% and 99% at each timepoint ($p < 0.001$) (figure 1).

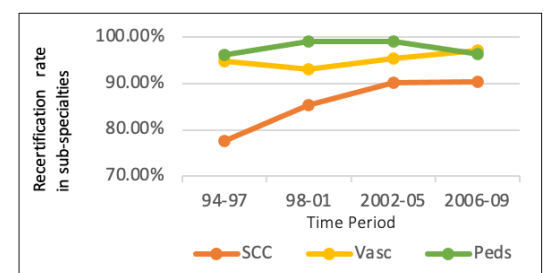


Figure 1 Compared recertification rates between SCC, VS and PS within the subspecialty ($p < 0.001$). PS, pediatric surgery; SCC, surgical critical care; VS, vascular surgery.

Table 1 Recertification rates between SCC, VS and PS within the subspecialty

	SCC		Vascular		Pediatrics		P value
	n	%	n	%	n	%	
10-year							
1994–1997	203	77.50	321	94.70	74	96.10	<0.001
1998–1901	228	85.40	312	93.10	99	99.00	<0.001
2002–2005	276	90.20	382	95.30	100	99.00	<0.001
2006–2009	361	90.30	387	97.00	105	96.30	<0.001
20-year							
1994–1997	149	73.40	289	90.00	66	89.20	<0.001

PS, pediatric surgery; SCC, surgical critical care; VS, vascular surgery.

The trend was mirrored in the 20-year recertification rate where the SCC surgeons had a lower recertification rate at 73.4% when compared with VS and PS at 90% and 89%, respectively ($p < 0.001$ for each) (table 1).

Regarding the difference between genders, between 1994 and 2009; the SCC group remained with a lower 10-year recertification rate between 77.5% and 90.3% than VS and PS at above 93% and 96%, respectively. For the 20-year recertification rate, we found a rate of 73.4%, 90% and 89.2% for SCC, VS and PS, respectively. All of which showed no statistically significant difference in the 10-year or 20-year recertification rates within each of the subspecialties (table 2).

Of those who did not recertify in their subspecialty at 10 years, recertification was more prevalent in SCC with 80% continuing to certified in GS (137/171), unlike VS with only 47% (34/72%) and none on the PS group (0/9) ($p < 0.001$).

DISCUSSION

As defined by the ABS, SCC is a specialty where the primary component is GS related to the care of patients with acute, life-threatening, or potentially life-threatening surgical conditions. The care for these patients could take place in different settings including the emergency department, the operating room and intensive care units. Due to the acuity of those conditions and the need for expeditious care, the practice of SCC has traditionally necessitated additional in-house, extended night and weekend clinical commitments with the call schedule frequently including a traditional 24-hour call model. This can be viewed as less desirable for many surgeons and, therefore, as we found on our analysis, some SCC surgeons elect to focus solely on the practice of GS rather than continuing practicing both SCC and GS. Some studies have reported an average time in practice of 15 years with a workforce shortage already being evident across

the country.^{1–3} This in contrast with the low recertification rates in GS from VS and PS who likely once have established their practice, elect to focus solely on that particular field instead of GS.

Interestingly, no difference in recertification was seen between genders in any of the subspecialties analyzed. In SCC, the percentage of women certifying in SCC increased from 17% to 28% throughout the cohorts. It is hoped that this represents an increasingly welcoming work environment for women in SCC practices. However, this does not reflect the historical trend of medical school female graduates during the corresponding academic years, 33.4% in 1988 and 45.3% in 2003.⁴ This confirms that SCC as a subspecialty still lags behind the increment of graduated women physicians according to data from AAMC, which is probably a reflection of SCC still being less appealing to the newer generation of surgeons.⁵

The interest in SCC and trauma has changed throughout the years. This has been studied since the 1990s when Richardson looked into the likelihood of surgery residents pursuing a career in trauma. Finding that even though most of them stated that trauma was a rewarding field, only 18% were planning to keep it as part of their practice.⁵ Since then, the low operative experience and lifestyle issues were found to be a concern. In 2010, this was corroborated by Hadzikadic *et al*, where poor reimbursement was also found to be a reason for surgical residents to decide not to pursue a career in SCC.⁶ Dwindling desire to pursue a career in the field continues to widen the gap for trauma surgeons across the country. With that being said, the recent changes in the scope of practice and the development of acute care surgery as a subspecialty have the potential to captivate more surgeons willing to enter the field as they will be able to increase their operative experience performing non-trauma emergency cases, and in some cases, elective surgery and outpatient clinic offering the possibility of a better reimbursement.^{6,7} These changes in practice environments may have influenced the results and the differences now seen with an increment of women in SCC with women representing more than 40% of the current trainees in the field.⁸

Currently, 4328 surgeons are certified in SCC⁹ and 1279 general surgeons have matched into SCC fellowship between 2019 and 2023.¹⁰ Our data only reflect the recertification rates at a time when the process mandated a lengthy exam every 10 years. It will be interesting to see if the ABS Continuous Certification process that was started in 2018 impacts the recertification rate over time. Each recertification session is much less burdensome, but it is necessary to do it every 2 years which might increase or decrease the barrier to recertifying.

Improvements in the system to tackle gender biases and the recertification process represent a significant effort to improve work–life expectancy; however, as mentioned above, there are

Table 2 Recertification rate between genders at 10-year or 20-year

	SCC female		SCC male		P value	VS female		VS male		P value	PS female		PS male		P value
	n	%	n	%		n	%	n	%		n	%	n	%	
10-year															
1994–1997	36	78.30	171	77	0.856	16	88.90	321	94.70	0.297	11	100	63	95.50	0.471
1998–1901	44	88	184	84.80%	0.563	32	94.10	312	93.10	0.828	16	100	83	98.80	0.661
2002–2005	66	91.70	210	89.70%	0.631	43	89.60	382	95.30	0.098	28	100	72	98.60	0.534
2006–2009	101	90.20	260	90.30%	0.976	50	96.20	239	96.80	0.825	25	96.20	80	96.40	0.956
20-year															
1994–1997	26	72.20	124	72.50	0.972	15	93.80	289	90.00	0.625	9	81.80	57	90.50	0.394

PS, pediatric surgery; SCC, surgical critical care; VS, vascular surgery.

other organizational barriers such as call schedule and scope of practice that still need optimization. It is necessary to continue to improve these barriers and focus on improving working conditions, surgeon wellness and satisfaction in order to reshape the field and promote professional longevity.¹

CONCLUSION

Based on the recertification rates, these results suggest that the time an SCC surgeon remains active in the workforce is increasing over time. However, recertification rates still lag behind those of vascular and PS, which have remained relatively stable. Unlike PS and VS surgeons, those in the SCC field have a higher recertification rate in GS. This may reflect the inclusion of GS as part of their practice, especially with the merge of emergency GS, trauma surgery and SCC as part of Acute Care Surgery. Issues of work life integration cannot be distinguished in this data. Further research is warranted.

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