



## SWSC 2020 On-Demand Meeting Abstracts

### 2. GENERAL SURGERY RESIDENT OPERATIVE EXPERIENCE IN VASCULAR TRAUMA

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**Background:** We have previously demonstrated that general surgery resident experience with open vascular operations has significantly declined. We have also demonstrated that the overall operative trauma experience of surgery residents has significantly declined. This study was undertaken to specifically examine trends at the interface of those two groups – the number of operations general surgery residents perform for vascular trauma.

**Methods:** Accreditation Council for Graduate Medical Education (ACGME) aggregate national operative log reports for individuals who completed residency each year from 1989-1990 through 2018-2019 were reviewed. Abstracted and analyzed from those data for each year were the number of programs that completed residents, the number of completing residents, the mean total number of major cases performed by each resident as surgeon (including those as surgeon junior and surgeon chief) and the mean number of cases performed as surgeon in categories identified as vascular trauma. Statistical analysis was performed using linear regression modeling. Statistical significance was set at  $p < 0.05$ .

**Results:** Despite a small decrease in the number of programs which completed residents each year during the study period ( $-1.08/\text{year}$ ;  $R^2=0.72$ ;  $p < 0.0001$ ) the number of completing residents increased at a rate of 6.7 per year from 981 in 1990 to 1219 in 2019 ( $R^2=0.67$ ;  $p < 0.0001$ ). The mean total number of major cases recorded by completing residents increased from 873 in 1990 to 1070 in 2019 ( $+3.55$  cases/year;  $R^2=0.53$ ;  $p < 0.0001$ ). The mean total number of identifiable vascular trauma cases recorded decreased from 8.6 for residents completing in the 1990 to 4.3 for residents completing in 2019 ( $-0.17$  cases per year;  $R^2=0.90$ ;  $p < 0.0001$ ). The mean total number of vascular trauma cases excluding fasciotomies for trauma and exposure codes decreased at a slightly more rapid rate from 6.9 in 1990 to 2.0 in 2019 ( $-0.18$  cases per year;  $R^2=0.94$ ;  $p < 0.0001$ ). In that group, the rate of decline in surgeon chief cases ( $-0.12$  cases per year;  $R^2=0.97$ ;  $p < 0.0001$ ) was twice the rate of decline in surgeon junior cases ( $-0.06$  cases per year;  $R^2=0.63$ ;  $p < 0.0001$ ).

**Conclusion:** General surgeons who take trauma call must be able to expose, control and repair vascular injuries appropriately and timely. This is particularly true in settings in which fellowship trained vascular surgeons and/or interventional radiologists are not readily available. However, over the last three decades, the number of operations that general surgery residents perform for vascular trauma has significantly decreased. Excluding cases limited to fasciotomy and exposure of vessels, the mean total number of vascular operations for trauma performed throughout the five years of residency has now fallen to 2. While that decline is likely multifactorial, the result is that the resident clinical experience in the repair of vascular injuries is now minimal. In order to maximize preparation for treating vascular injuries, residents should actively participate in as many elective open vascular operations as possible. Consideration should also be given to supplementing clinical experience in



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vascular trauma with structured modular education utilizing both didactic and simulation-based experiential learning.

