Rewriting the Future of Transplant and Vascular Surgery: Survey Suggests Vascular Surgery Workforce Available to Increase Retention and Recruitment in Transplant

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Introduction: Transplant Surgeons report high levels of career satisfaction, yet < 25% of the fellowship applicant pool consists of US applicants, 25% of training positions remain unfilled annually, and the attrition rate for young surgeons is 25% over five years.

The integrated vascular training pathway has improved diversity and lowered attrition rates. Overlap in key competencies offers the potential for a combined vascular-transplant training pathway. ASTS certification is not mandatory and there are many surgeons eligible to register as organ transplant surgeons through the OPTN bylaws "Clinical Experience Pathway."

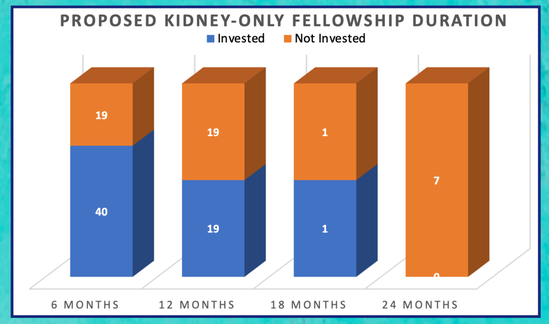
Little has been published to characterize the current role of vascular surgeons in transplant programs or the interest among vascular surgeons in contributing to the transplant workforce. We surveyed vascular surgery trainees and surgeons to better understand their interest in formal transplant training.

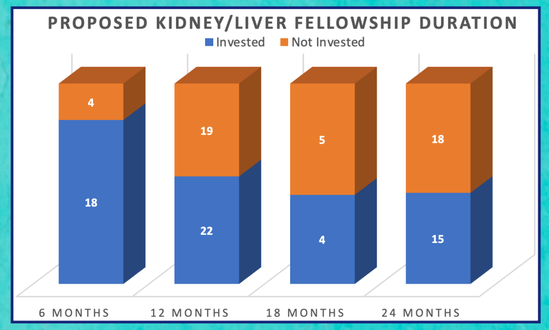
History: On September 22, 2023, H.R. 2544, the "Securing the U.S. Organ Procurement and Transplantation Network Act", amended the 1984 National Organ Transplant Act and clarifies ambiguity in transplant regulation. The act established an independent board of directors of the Organ Procurement and Transplantation Network (OPTN) with authority to approve new training pathways. Because integrated vascular graduates hold a primary certificate by the American Board of Surgery (ABS), they should be considered for advanced transplant training.

Materials and Methods: A 10-question survey was emailed to vascular surgeons/trainees. Those interested in transplant or a kidney transplant/vascular curricula merger were labeled "invested" in transplant. The characteristics of respondents invested (+/-) in transplant were assessed using Fisher's exact test and multivariable logistic regression. All analyses were completed in STATA, using an alpha of 0.05.

Table 1				n = 113
Q1: Do you currently or have you ever had an interest in organ transplantation?			Yes	58 (51%)
			No	55 (49%)
Interest (among the 58 "Yes"):	Kidney: 38	Kidney/liver: 18	Liver: 2	
Q2: Why are you NOT interested in transplant?				
A:	Not relevant to my interests in vascular surgery			55 (49%)
B:	I feel general surgery or urology would be more appropriate preparatory pathways to transplant			2 (2%)
C:	Not Applicable, I am interested			56 (50%)
	* 2 interested in Q1 specified they lack current interest			
Q3: Would you be interested in incorporating kidney transplantation as part of the integrated vascular surgery residency or fellowship curriculum?			Yes	59 (52%)
			No	54 (48%)
Q4: Would you be interested in an additional length of training to participate in organ transplantation? –select most accurate statement				
A:	non-abbreviated 24-month requirement to participate in both kidney and liver transplantation is appropriate			7 (6%)
B:	Yes, but only if it is abbreviated below the current 24-month requirement			40 (35%)
C:	I'm interested in transplant if integrated into the vascular curriculum			36 (32%)
D:	I am not interested in additional training/fellowship			30 (27%)
Q5: If an abbreviated kidney transplant fellowship was approved for vascular surgeons, the most appropriate length would be?				
A:	6 months provided case requirement is met			59 (52%)
B:	12-month duration			38 (34%)
C:	18-month duration			2 (2%)
D:	Existing 24-month requirement to participate in both kidney and liver transplantation is appropriate			7 (6%)
	*7 missing responses (6%)			
Q6: If an abbreviated kidney-liver fellowship were approved for vascular surgeons, I feel an appropriate length of training would be?				
A:	6 months provided case requirement is met			22 (19%)
B:	12-month duration			41 (36%)
C:	18-month duration			9 (8%)
D:	Existing 24-month requirement to participate in both kidney and liver transplantation is appropriate			33 (29%)
	*8 missing responses (7%)			

Demographics		
Birth Gender	Male	80 (71%)
	Female	26 (23%)
	Prefer not to Disclose	5 (4%)
	*2 missing responses (2%)	
Age	20-31	7 (6%)
	31-41	34 (30%)
	41-51	20 (18%)
	51-61	32 (28%)
	>62	18 (16%)
	*2 missing responses (2%)	
Title	Integrated Vascular Resident	18 (16%)
	Traditional Vascular Surgery Fellow	15 (13%)
	Attending Vascular Surgeon (0+5)	10 (9%)
	Attending Vascular Surgeon (5+2)	70 (62%)
Education	US Graduate MD/DO	76 (67%)
	International Medical Graduate	37 (33%)





Results: There was a 14% (113/791) response rate. Half (50%, 56/113) reported an interest in organ transplantation. Within the interested group, most (66%, 38/58) favored renal-only training and 31% (18/58) renal/liver. Only those initially interested in transplant were willing to participate in a 24-month fellowship.

The "invested" group (55%, 62/113) included those with transplant interest (56/113) and those supporting transplant integration into the vascular curriculum (59/113)— this group had a higher interest in fellowship (p=0.002) and favored a shorter fellowship for kidney-only and combined kidney/liver training, p=0.001 and p=0.04, respectively.

An additional 21 were interested in transplant training integrated with residency but not a fellowship, totaling 73% (83/113) supporting transplant training. The remaining 27% (30/113) were not interested in transplant and were averse to participating in a combined transplant/vascular curriculum.

Implementation of an abbreviated (<24 months) transplant fellowship for vascular surgeons was favored by 93% (99/106) and 71% (75/105) for kidney-only vs combined kidney-liver certification.

On multivariate analysis, respondents older than 50 and Attending Vascular Surgeons (0+5) had significantly decreased investment in transplant (p = 0.027) and (p = 0.033), respectively.

Conclusion: This is the first survey to investigate transplant interest among vascular surgeons and trainees. There was significant interest in transplant spanning across gender, age, and level of training. Establishing a vascular-transplant pathway could expand skills and increase diversity, equity, and inclusion among both specialties.