AMERICAN SOCIETY OF TRANSPLANTATION

2020 EDUCATION NEEDS ASSESSMENT SURVEY

Initial Summary Report

Table of Contents (*Click on the page number to skip to a section*):	

Distribution and Response

Distribution of the 2020 Education Needs Assessment Survey mirrored distribution of the 2015 survey. The 2015 version was distributed by email to all AST members from February 4 to March 9, 2015, and the link was also made available on the society's website and AST Community of Practice (COP) Hubs. The 2020 survey was open from February 6 to March 6. One important change in 2020 was that distribution of the current survey was limited to individuals on the society's educational email list and to individuals signed up to receive COP Hub emails. This makes the final denominator more difficult to determine.

- **2015 response rate:** 15.75% (527 completed entries from 3,345 individuals)
- **2020 response rate:** between 15.00% and 16.00% (621 completed entries from between 3,882 to 4,139 individuals)

Final Reporting

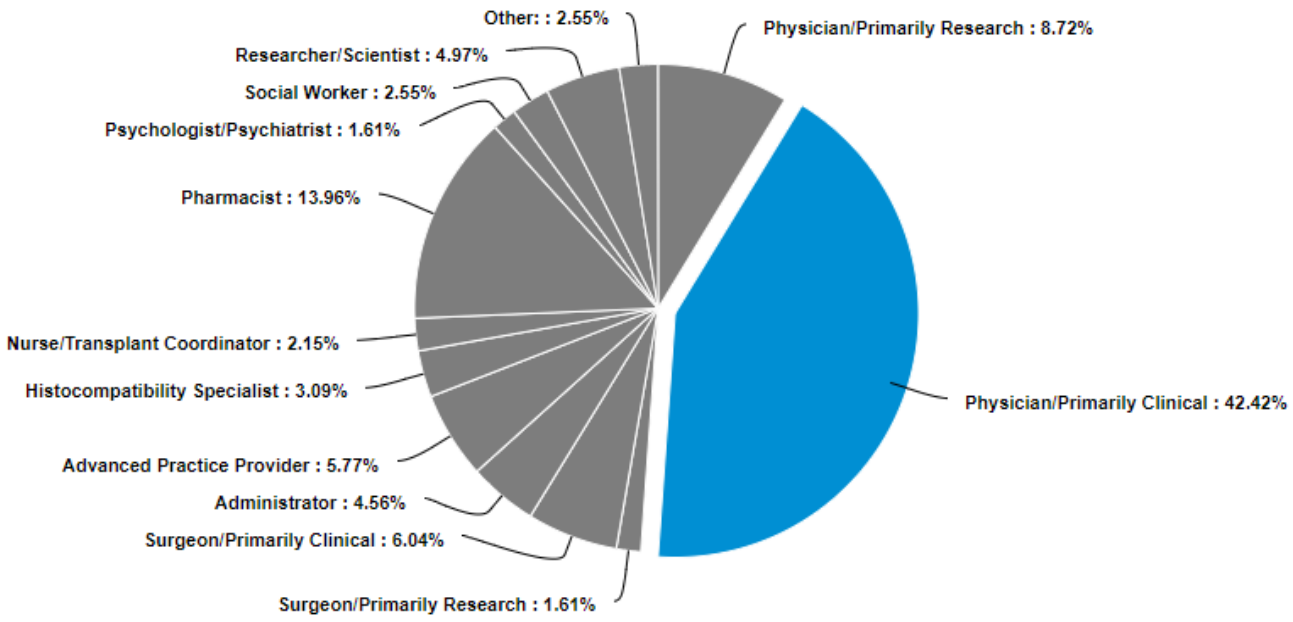
After this initial survey report, AST staff will prepare: 1) **a final report** covering the results of the survey in more detail, and 2) **COP specialty reports** with detailed information on specialty-specific responses.

AST's Education Committee and staff will also explore ways to cross-reference responses to help the society better understand the data available. For example, it may be useful to compare responses from "*factors which influence member participation in an educational activity*" with participant "*level of experience*" to better tailor our educational content to a target audience. The responses can be cross-tabulated and examined as follows:

	Not yet in training	In training (resident)	In training (fellow)	<5 years	6-10 years	11-15 years	16-20 years	21+ years
Available to review/complete at my convenience (on demand)	3	10	34	159	101	85	65	109
Interactive format	2	5	17	69	58	37	22	47
Cost is within my budget	2	10	31	129	90	69	50	87
Thought leader/expert faculty	1	4	21	92	79	67	51	103
Length of activity/Shorter	1	4	23	75	68	47	32	53
Length of activity/Longer	1	1	2	8	9	8	4	5
I can access useful resources and tools for my practice	0	10	26	102	62	46	41	74
CE/CME credit available	1	3	9	90	59	52	29	66
MOC points available	0	0	6	42	37	26	12	39
Proximity to where I live (if a live meeting)	1	5	12	73	45	33	26	44
Other factors not listed:	0	1	0	7	4	4	2	5

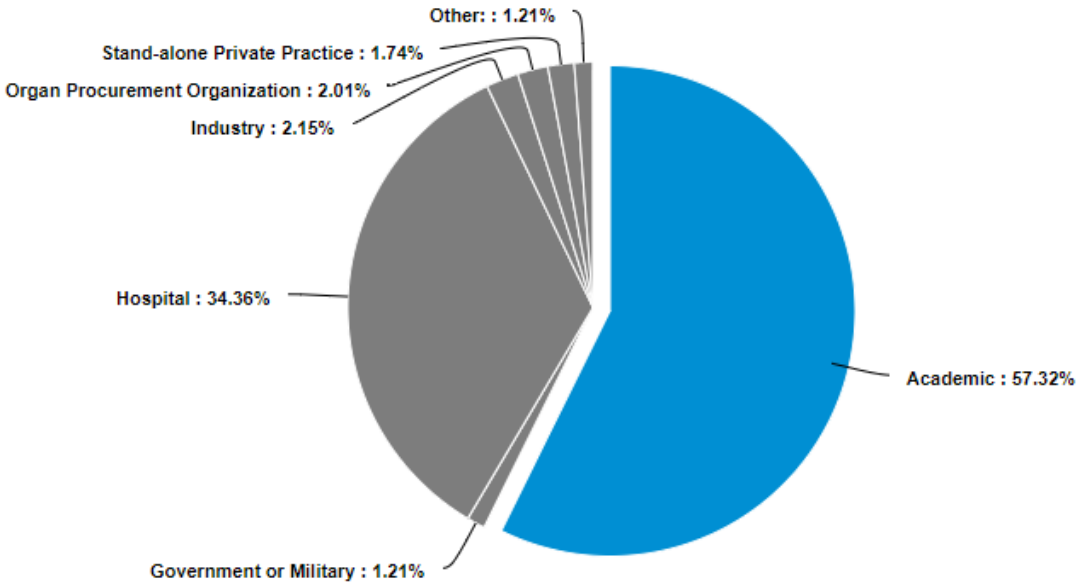
Participant Roles and Affiliations

Question 1: Participants were asked "***which best describes you*** *(select one)?*"



In Question 1, participants who selected "*other*" primarily added a "*Quality*"-related role to describe themselves.

Question 2: Participants were asked to select their "***affiliation***."



Participant Location and Center

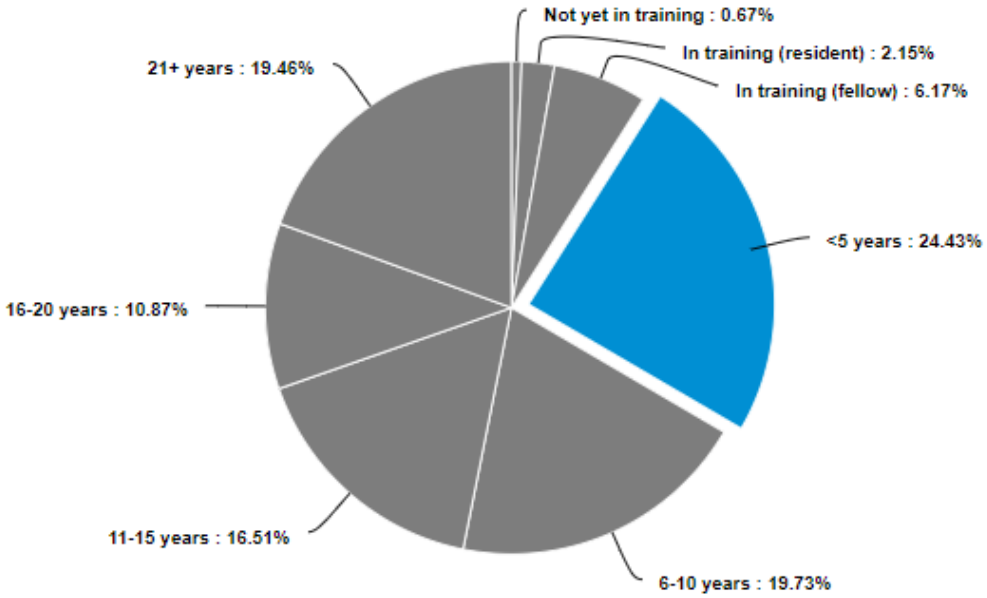
Participants in the United States accounted for nearly 89% of survey responses. Overall, we received responses from participants in approximately 30 countries. Participation from Canada (2.45%), Turkey (1.28%), Germany (0.75%), and Brazil (0.75%) rounded out the top five in that order.

Questions 3 & 4: Reporting on location (via zip code) will be provided in the final report. Participants were also asked to provide their four-digit **center code** to help us better understand responses within a location with high representation. From this data, we have early information on the top five centers represented in the survey:

1. **NCDU** - Duke University Hospital (13 responses)
2. **ILNM** - Northwestern Memorial Hospital (11 responses)
3. **PAPT** - University of Pittsburgh Medical Center (9 responses)
4. **MDUM** - University of Maryland Medical System (8 responses)
   WAUW - University of Washington Medical Center (8 responses)

Participant Experience

Question 5: Participants were asked to "*enter your **level of experience/years in practice***."



This was a **significant change** compared to participation in the 2015 survey. In 2015, 31.00% of the participants were "*21+ years*" (ranked first) while only 15.64% were "*<5 years*" (ranked fourth). "*6-10 years*," "*11-15 years*," and "*16-20 years*" remained similar in percentages in both polls.

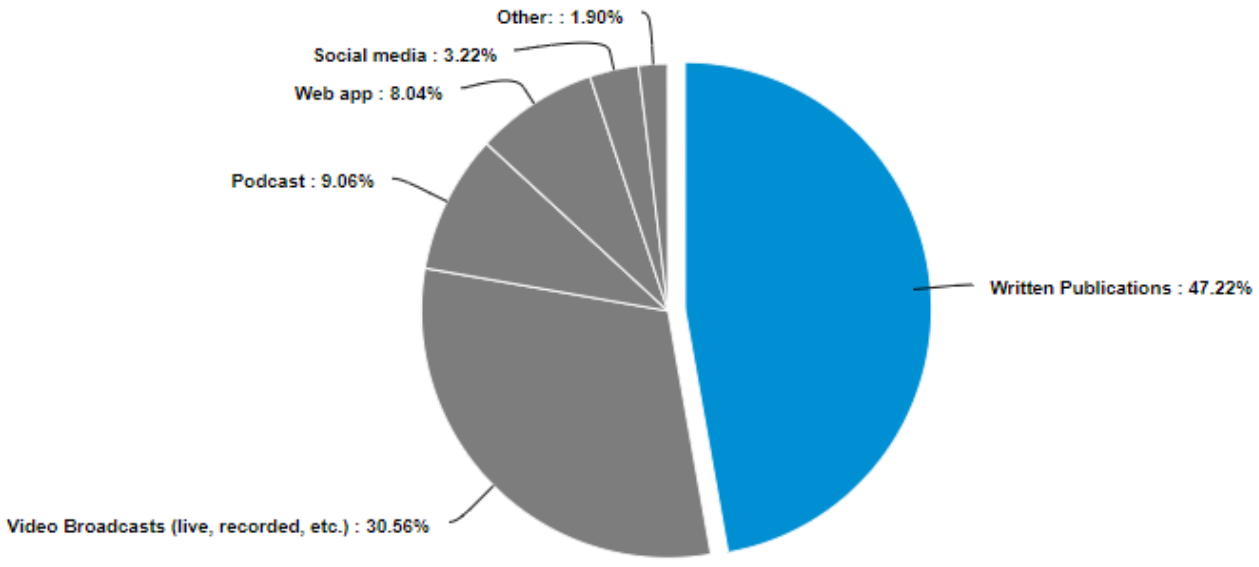
Best Educational Format for Patient Care

Question 6: Participants were given a list of educational formats and asked to rank the top three specifically based on which formats are "*MOST important to you in achieving the goal of* ***improving patient care***."

Educational Format (684 Responses)	Ranked 1st	Ranked 2nd	Ranked 3rd
Published Treatment Guidelines	163	134	101
National Meetings	160	125	121
Case Scenarios	104	75	93
Webinars	90	97	94
Literature Reviews	87	149	141
Journal Clubs	53	59	77
Podcasts	25	43	48
Other	2	2	9

How Members Learn

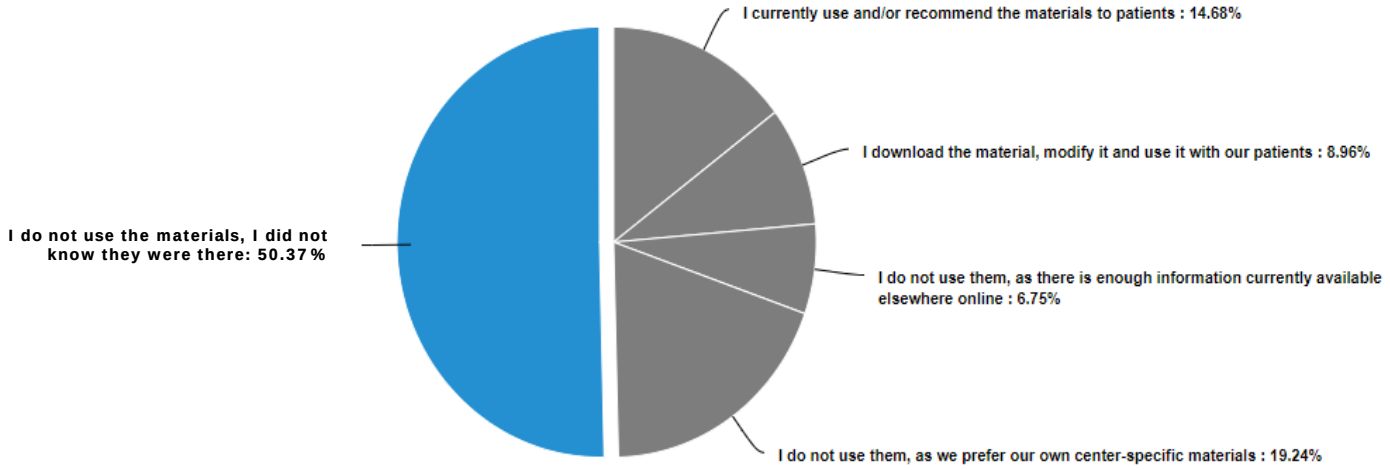
Question 7: Participants were given a list of educational formats and asked, "*what medium do you feel you* ***learn BEST from*** *(select one)*?"



Most participants who provided comments in the "*Other*" category added "*live meetings*" as a format which they learned best from.

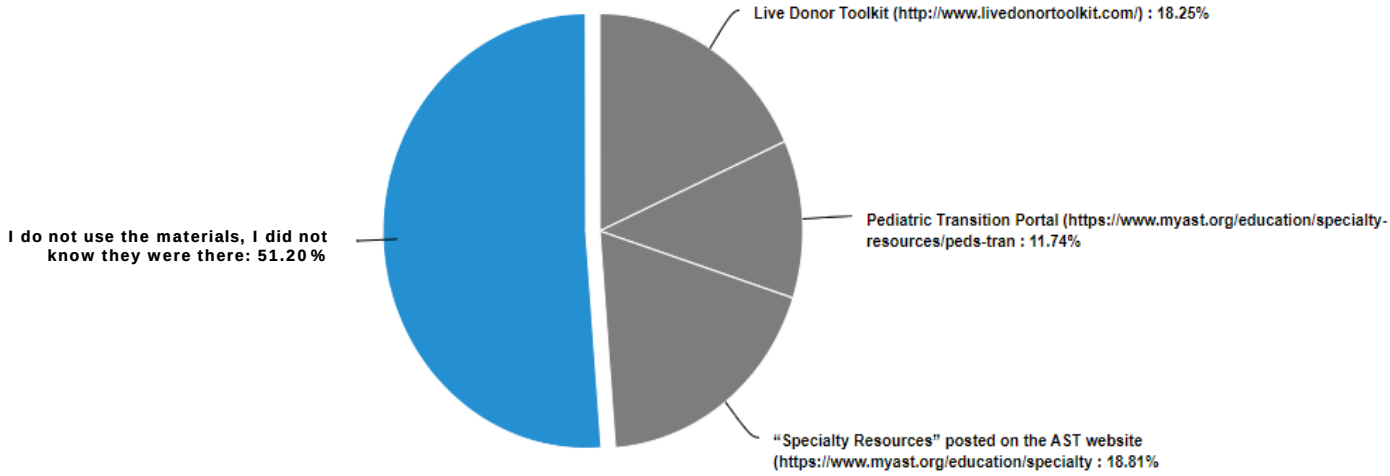
Using Power2Save

Question 8: Participants were asked if they "*use the patient education materials on the **AST's Power2Save (https://power2save.org) website** (checking all items that apply)*."



Using Additional AST Patient Resources

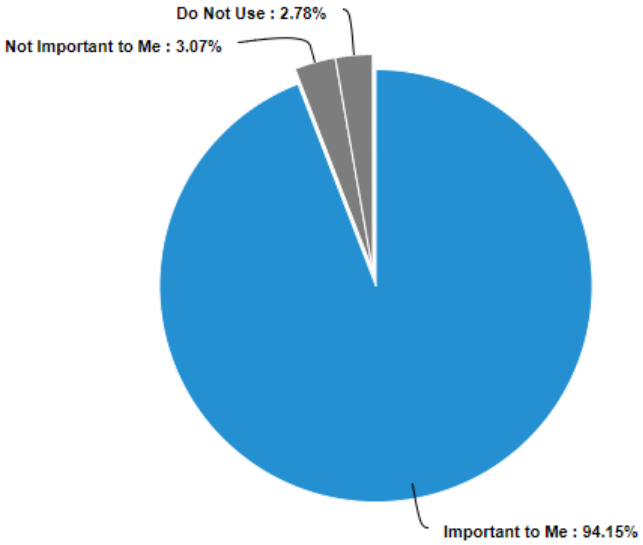
Question 9: Participants were asked if they used "***other AST patient education materials** (checking all that apply)*."



Sources for Educational Development

Question 10: Participants were presented with a list of transplant education providers and asked, "*how important to your personal educational development is each of the following providers of education?*" Participants were asked to rate each provider as either "*Important to me*," "*Not important to me*," and "*Do not use*."

94.15% of participants listed AST as an important source for "personal educational development" (a small increase from 2015).



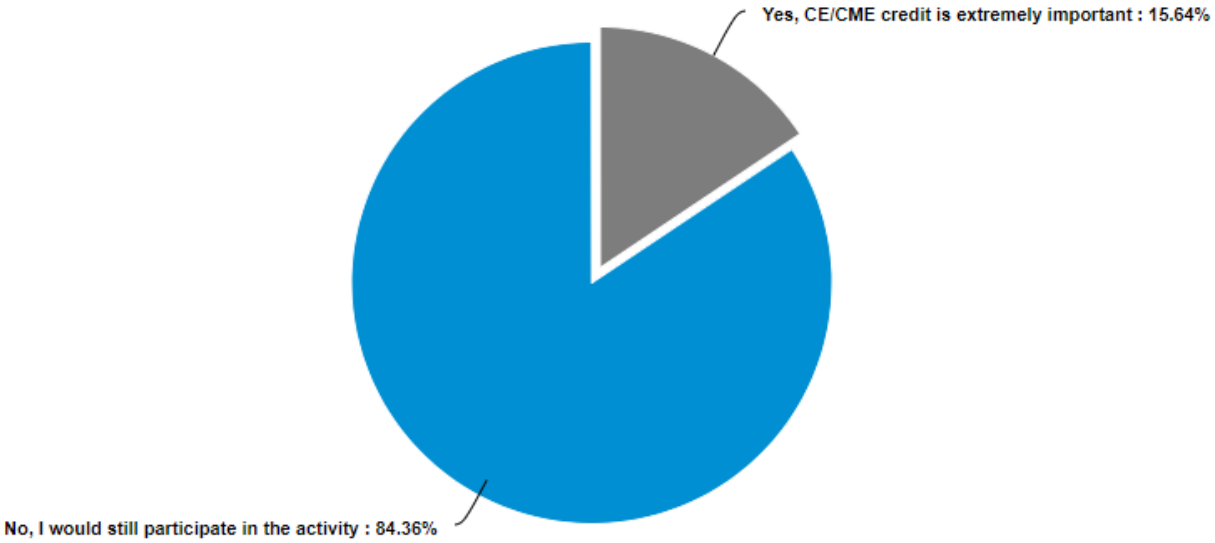
A complete breakdown of the results is as follows:

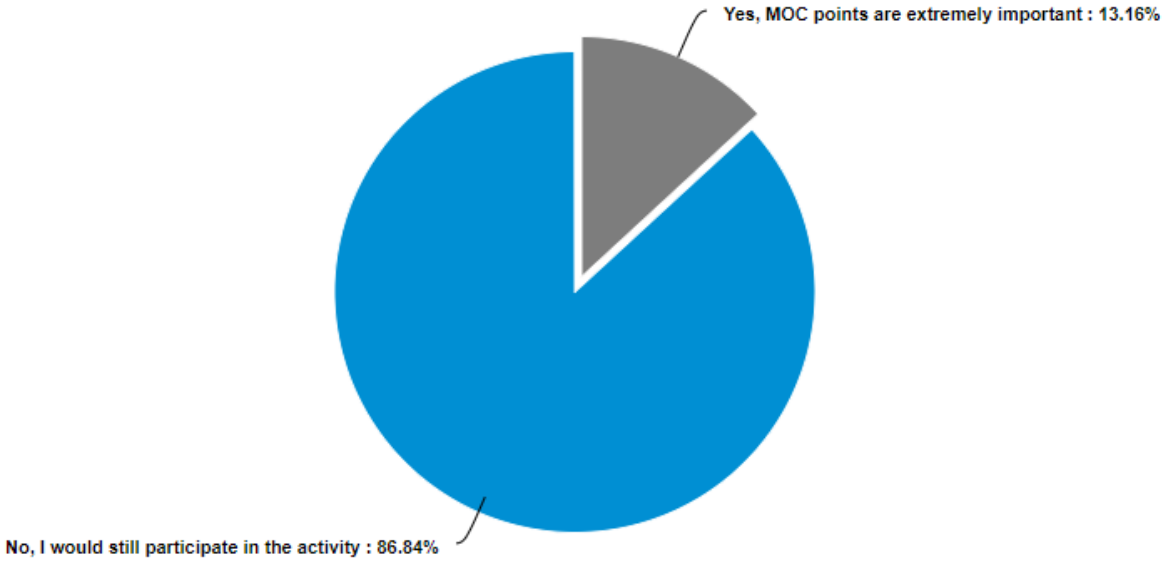
Education Provider	"Important to Me"	"Not Important…"	"Do Not Use"
My institution or another institution:	87.72%	8.33%	3.95%
AST:	94.15%	3.07%	2.78%
Accredited medical education company (e.g. Medscape):	37.87%	33.19%	28.95%
Pharmaceutical/industry-provided education (non-CME):	23.54%	44.01%	32.46%
Seeking out independent education on my own:	87.72%	6.43%	5.85%
A professional society other than AST:	72.08%	11.99%	15.94%

Over 490 participants provided examples of other societies that were important sources of educational development. ASN, IDSA, ISHLT, AASLD, and many other familiar specialty-related organizations were listed multiple times. More information on these examples will be provided with the final report.

Importance of CE and MOC

Questions 11 & 12: Participants were asked if they would "***turn down an educational activity*** *if continuing education (CE or CME) credit, or maintenance of certification (MOC) points, was not available*" even if the topic was of interest.

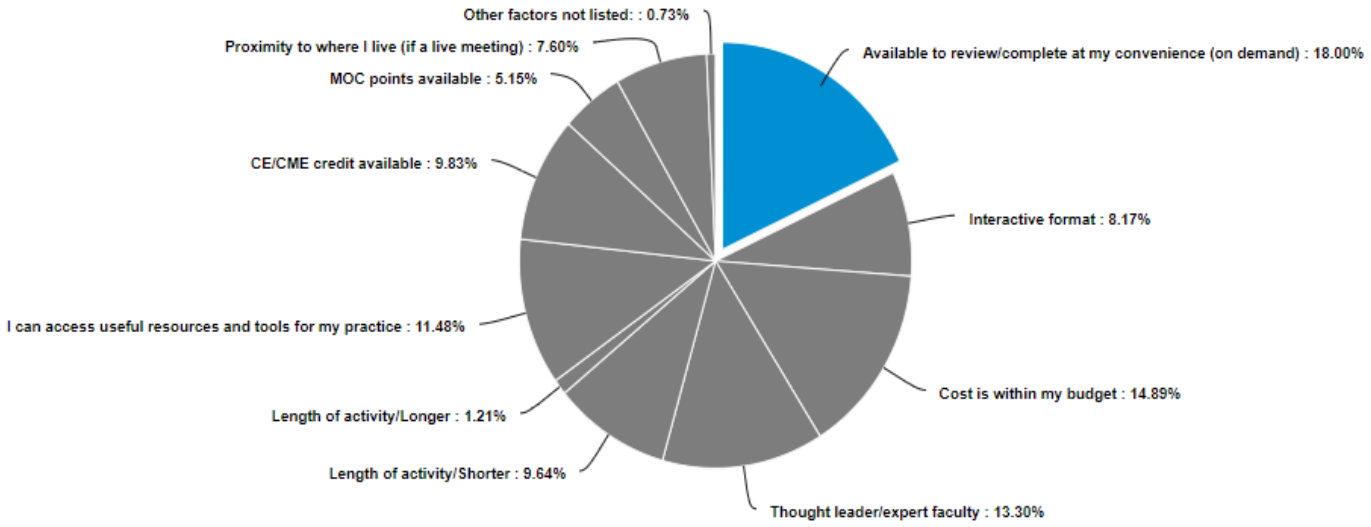




In addition to "yes"/"no" feedback, participants provided over 60 comments on CE/CME activities and over 30 comments on MOC activities. These will be compiled and made available in the final report.

What Influences Participation?

Question 13: Participants were asked to "*Select **each factor that INFLUENCES YOUR DECISION TO PARTICIPATE** in an educational activity (and leave an item un-checked if it does not influence your decision to participate.)*."



The top three **most influential factors** were:

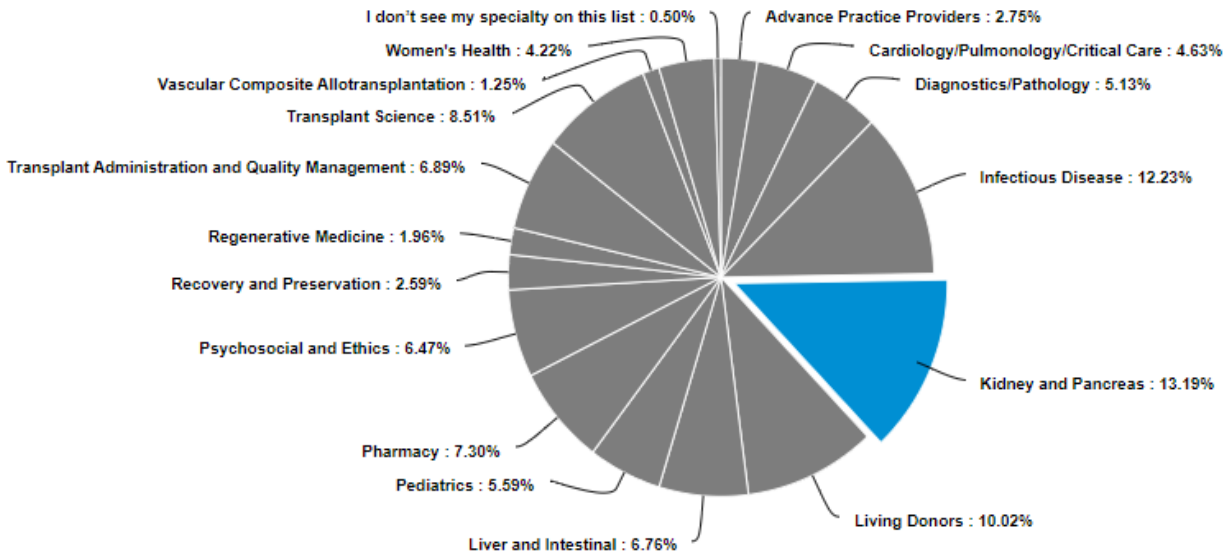
1. Available to review/complete at my convenience (on demand) – 18.00%
2. Cost is within my budget – 14.89%
3. Thought leader/expert faculty – 13.30%

"*Other factors not listed*" (0.73%) included:

- "time of day"
- "during business hours"
- "ease of registration"
- "diversity of speakers" and
- "no speaker conflict of interest/industry funding"

COP Specialty Overview

Participants were asked to select one or more specialties in a list (based on our current Communities of Practice) and rank a prepared list of topics within each specialty. 684 participants selected 2,396 specialties to rate (3.50 per participant). Specialty interest was as follows:



Interest in every specialty grew from 2015 to 2020, with "*Women's Health*" and "*Psychosocial and Ethics*" showing the largest percentage increase in selections from 2015:

COP Specialties / # of Selections	2020	2015
Advanced Practice Providers (new for 2020):	66	N/A
Cardiology/Pulmonology/Critical Care:	111	91
Diagnostics/Pathology:	123	110
Infectious Disease:	293	230
Kidney and Pancreas:	316	308
Live Donors:	240	169
Liver and Intestinal:	162	131
Pediatrics:	134	93
Pharmacy:	175	122
Psychosocial and Ethics (updated from 2015):	155	61
Recovery and Preservation (new for 2020):	62	N/A
Regenerative Medicine:	47	38
Tx Administration and Quality Management (updated from 2015):	165	134
Transplant Science (updated from 2015):	204	141
Vascular Composite Allotransplantation:	30	23
Women's Health:	101	31

Snapshot of Top COP Specialty Topics

For the 2020 survey, COP leaders were asked to create or update a list of important topics in their corresponding specialty. Participants were then asked to **rate each topic in their selected specialties** as "*Not interested*," "*Interested but have sufficient knowledge*," or "*Interested & want/need to learn more*."

Presented as a preview, below are the top 2-3 topics in each specialty or specialty subsection based on an estimated initial rating. A full report on specialty topics is being compiled and will be made available as soon as possible.

Advance Practice Provider

1. Post-transplant management protocols
2. Management of immunosuppression in the setting of acute infectious complications and malignancy
3. How to optimize APPs working at the top of their scope of practice

Cardiology/Pulmonology/Critical Care (Subsection: Cardiology/Cardiac Surgery/Critical Care)

1. Use of ex-vivo donor organ systems and donation after circulatory death (DCD) in thoracic transplantation
2. Significance, identification and treatment of post-cardiac transplant AMR and circulating antibodies (includes HLA, non-HLA, non-specific and donor-specific antibodies)

Cardiology/Pulmonology/Critical Care (Subsection: Pulmonary/Thoracic Surgery/Critical Care)

1. Lung Support Devices: ECMO and beyond
2. *Two topics tied for second* (AMR and circulating antibodies & Ex-vivo donor organ systems and DCD)

Diagnostics/Pathology

1. The ensemble of diagnostic tests / cross-disciplinary expertise used to guide transplant care
2. Biomarkers for diagnosing allograft dysfunction (i.e. Donor-Derived Cell-Free DNA)
3. Diagnosis of viral infections after solid organ transplantation

Infectious Disease

1. Multidrug Resistant Organisms, for example: Donor infection with MDROs, Risk factors and outcomes associated with MDRO infection, Treatment of MDRO infections, & New strategies such as FMT and phage therapy
2. Donor-Derived Infections, for example: Risk stratification of donors and strategies to minimize risk of transmission, & Upcoming changes to PHS increased risk criteria
3. PTLD/EBV, for example: EBV viral load monitoring and/or antivirals as prevention, Role of cell-based therapies, & Indications for rituxan prior to the development of PTLD

Kidney/Pancreas (Subsection: Kidney)

1. Donor specific antibodies monitoring and treatment strategies (including managing patients with de novo DSA and stable allograft function)
2. Chronic humoral rejection management

Kidney/Pancreas (Subsection: Pancreas)

1. Simultaneous pancreas/kidney vs pancreas after living donor kidney transplant
2. Pancreas transplantation versus medical therapy

Live Donor

1. Finding common ground: standardizing living donor evaluations
2. Substance Abuse, Smoking and Vaping in donor and recipient candidates
3. Utilization of Hepatitis C Ab positive/NAT-negative living donors

Liver and Intestinal

1. Precision immunosuppression to improve allograft outcomes: new approaches to utilize biomarkers in clinical management
2. Expansion of allocation, utilization and optimization of donor organs - use of artificial intelligence to improve allocation, extended criteria donors, split grafts, living donor liver transplant, machine perfusion, administration of free radical scavengers, graft/recipient matching
3. ICU care of pre- and post-liver transplant recipients: When is the patient too sick to transplant?

Pediatrics (Subsection: General Pediatrics)

1. Newer immunosuppressive medications in transplantation and for the treatment of allograft rejection
2. Infectious disease issues: Prevention of infection (resistant infections) in hospitalized transplant patients and best strategies for maximizing vaccination and vaccination response pre- and post-solid organ transplant

Pediatrics (Combined from Multiple Subsections)

1. Examine pediatric aspects of paired kidney donation and the involvement of pediatric candidates in PKD schemes (from Pediatric Nephrology)
2. The role of dialysis in the peri-operative management of the non-renal solid organ transplant recipient (from Pediatric Nephrology)

Pharmacy

1. Managing adverse events from immunosuppression and prophylaxis
2. Medication management of comorbidities and complications
3. Managing complications with polypharmacy

Psychosocial and Ethics

1. Assessment issues for patients requiring re-transplant, esp. in cases where nonadherence contributed to graft failure
2. Strategies to reduce disparities in access to and outcomes of transplantation
3. Ethical implications of the role of social media in organ donation

Recovery and Preservation

1. Next-gen organ preservation technologies
2. Impact of enhanced preservation on DCD utilization, and consequent decision making in selection of preservation modality
3. *Three topics tied for third* (Introduction to new ex vivo perfusion tech, Assessment of Donor Organs during perfusion-preservation, & Impact of extended preservation duration with new technologies)

Regenerative Medicine

1. Stem cells and organs preservation
2. New technologies to manufacture transplantable organs: 3D Printing
3. *Two topics tied for third* (Regenerative Medicine technologies, & the Organ Repair Center)

Tx Administration and Quality Management (Subsection: Quality):

1. Evaluating your Transplant Center's Quality Programs
2. Building and Implementing a Transplant QAPI Plan

Tx Administration and Quality Management (Subsection: Data):

1. Performance Measures - Ensuring Meaningful Data
2. Outcomes management and data integrity

Tx Administration and Quality Management (Subsection: Business of Transplantation/Operations):

1. Habits of a successful leader - fostering team engagement
2. OPO & Transplant Center Collaborations

Tx Administration and Quality Management (Subsection: Patient-centered Care):

1. Strategies to improve recipient readiness and reduce disparities
2. Use of technology in patient care

Transplant Science

1. Gene expression profiling in transplantation: benefits and pitfalls of different platforms (microarray, nano string)
2. Benefits and Limitations of profiling circulating blood cells to understand human immune responses
3. Power calculations and biostatistics for experimental transplant immunology

VCA

1. Chronic rejection
2. Outcomes after a VCA
3. Two topics tied for third (Antibody mediated rejection, & Immune monitoring, predictive biomarkers, and non-invasive imaging strategies)

Women's Health

1. Career development for women in transplant
2. Management of pregnancy in transplant recipients, including pregnancy timing, transplant medication safety in pregnancy and in nursing mothers
3. *Three topics tied for third* (Sexual health after transplant, Optimizing birth control, & Fertility)

Unlisted Specialties?

Participants who selected "I don't see my specialty on the list" provided a mix of topics which overlapped with the existing COP specialty sections.

Trainees and Young Faculty

Participants who listed their "*level of experience/years in practice*" as *"<5 years*," "*In Training*," or "*Not yet in training*" were also asked to answer questions in a "*For Trainees Only*" section.

In this section, one of the questions asked participants to "*categorize your need for each of the following* ***career and knowledge development opportunities***." The following were ranked in order as the top three needs:

1. Networking opportunities with peers
2. Choosing and working with mentors in training and early career
3. Networking opportunities with mid-level and senior faculty

Additional Suggestions and Ideas

Participants were also asked to "*suggest an **additional education activity or topic** that was not previously covered in the survey*." We received over 40 response which will be discussed at more length in the final report.

Additional topics suggested generally focused on policy and regulation (for example, topics related to UNOS, CMS, and Medicare) and living donation (for example, topics related to potential elderly living donors, living liver donation, and BMI > 30). Additional format suggestions included ideas for ATC and interactive content.