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Original Research

Transition to Practice in Anesthesiology: Survey Results of Practicing Anesthesiologists on Their Experience

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Introduction

Traditional medical training has emphasized the role of biomedical knowledge in the clinical care of patients. However, practice management (PM) represents an underappreciated domain relevant to the anesthetic care of patients. PM entails overseeing operating room (OR) schedules and flow, understanding healthcare regulatory and legislative issues, hospital staffing, resource allocation, financial planning, facilitating communication and conflict resolution, strategic thinking and decision making, and implementing quality improvement efforts to strengthen medical practice performance and improve patient outcomes. Currently, anesthesiology residents in the United States are required to develop clinical skills to provide patient care, as well as obtain exposure to the business aspects of modern healthcare.[1]. As most anesthesiologists choose a career in private practice, they must be familiar with basic business concepts as well as working in an anesthesia care team model.[2] It is equally important for those who go into academic practice or teach residents to learn these concepts as they will need to take on leadership roles in their hospitals.

The 2017 Accreditation Council for Graduate Medical Education (ACGME) program requirements state: "PM should be included in the curriculum, and should address issues such as OR management, types of practice, job acquisition, financial planning, contract negotiations, billing arrangements, professional liability, and legislative and regulatory issues." This was first required by anesthesiology training programs in 2008.[1,2] Some anesthesiology programs have incorporated didactics pertaining to PM topics and/or transition to practice (TTP) curriculum [1]. However, it is unclear how many programs effectively teach this material and its impact on trainees' TTP experience. There are only a few studies that examine anesthesiologists' experience with TTP and PM education, some of which reported educational deficiencies.[1,3-6] Patel et al surveyed Society of Critical Care Medicine (SCCM) anesthesiology members and reported a majority of respondents felt inadequately prepared for seeking job opportunities,[3,4] with 88% reporting a desire for more dedicated career development training events.[3]

To date, no studies describe or assess the experiences of US anesthesiologists transitioning to clinical practice. This is the first study to attempt to document and describe the attitudes of practicing US anesthesiologists on the medical business training received during residency and their experience during TTP. Armed with the results of this TTP survey, residency programs, the American Society of Anesthesiologists (ASA), and anesthesiologists-in-training may be better equipped to improve business education and develop targeted activities/resources to prepare for career transitions. We hypothesized that the majority of respondents have inadequate training in PM and lack TTP curricula.

Materials and Methods

The ASA Department of Analytics and Research Services approved the study proposal and a survey for distribution to ASA members. Our work followed appropriate Transparent Reporting of Evaluations with Nonrandomized Designs (TREND) guidelines.

ASA Committee of Young Physicians members developed the survey from a list of potential survey questions that were reviewed, refined, and modified through group consensus. Question writing emphasized standard practices to minimize response error through cognitive testing, to optimize question format and order via pilot testing, and to minimize social desirability and recall bias.[7] The final survey (Appendix A) consisted of 39 questions including basic demographic information, current practice information, and opinions on knowledge and preparedness to TTP using multiple choice and Likert-type scale questions. Open-ended responses permitted participants to comment on familiar resources regarding the business aspects of anesthesiology and provide feedback on what could have improved their TTP experience.

The survey was distributed via email by the ASA. Surveys were sent to a cohort of ASA members who were practicing anesthesiologists and resided within the United States. Trainees such as medical students, residents, and fellows were excluded. Participation was voluntary, non-incentivized, and consent was implied by completing the sur-

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vey. De-identified and anonymous results were captured using SurveyMonkey (SurveyMonkey Inc., San Mateo, California). The recruitment period began on October 10, 2017 with 1 reminder message sent on October 16, 2017. The survey remained accessible until December 4, 2017.

The study sample was designed to be representative of practicing attending anesthesiologists in the United States. We determined an a priori sample size of 380 participants using the Krejcie and Morgan method based on a margin of error of 5%, population proposal of 50%, 95% confidence level, and a population size of 30 000 (estimated from the known population size of the eligible ASA member cohort of 26 551).[9] The study was reviewed by the University of Southern California Institutional Review Board and deemed to be exempt.

Statistical Analysis

For numeric responses, we examined distributions. We used descriptive statistics, reporting measures of central tendency including mean (95% confidence interval) for normally distributed data and median (interquartile range) for skewed data. Since the ACGME added PM as an educational requirement in 2008, we performed a post-hoc analysis of the respondents of those in practice ≤ 10 years and compared them to those in practice ≥ 11 years. We calculated frequencies and percentages by survey question. Analyses were accomplished using SurveyMonkey, Microsoft Excel (Microsoft, Redmond, Washington), and Stata, version 13.1 (StataCorp LP, College Station, Texas). We compared categorical values using the χ^2 test and considered P values < .05 statistically significant.

Results

Of the 26 551 participants contacted, 1199 completed the survey (response rate = 4.5%). The respondents' demographic and clinical practice responses are provided in Table 1. The average age of respondents was 50 years with average years in practice of 17. There were similar response distributions across various US geographic regions. Most participants were in private practice (69%) and academic practice (28%).

Table 3. Seminars, Courses, Retreats on Transitioning to Practice/Business Aspects of Medical Practice Identified by Participants (Which They Either Knew of or Attended), in Order of Frequency Mentioned

Discussion

The experience of US anesthesiologists before, during, and after the transition from training into clinical practice has not been previously described. We undertook this study to more thoroughly investigate our perception that most anesthesiologists receive little, if any, formal guidance/education offered through their training programs as they TTP. Further, it was our aim to understand their experiences with TTP, education on business aspects of medicine/PM offered in training programs, and what they perceived could have been beneficial to them to facilitate a smooth transition from a training to clinical practice.

Our survey identified several common gaps in medical business management education across US anesthesiology training programs. Mentorship for TTP was rare amongst our respondents, as was a dedicated curriculum focusing on the challenges and topics associated with TTP. Fewer than 10% of those surveyed were exposed to formal education during their residency training on TTP. It is promising that those in practice ≤ 10 years were more likely to have had a TTP curriculum in their training program compared to those in practice > 11 years. Despite the increase PM training during residency, there still is room for improvement. More than half of the respondents felt they did not know the appropriate questions to ask during a job interview, and over 75% were unaware of resources available to provide additional education and counseling to improve their experience during transitioning out of residency. Additionally, of those in practice ≤ 10 years, 38% reported their training program did not address any of the 12 PM topics clearly outlined by the ACGME, and those that did provide education on PM, did not address all the 12 topics deemed to be important when TTP.

Although the majority of respondents reported feeling insufficiently trained to TTP, both subgroups (≤ 10 years and ≥ 11 years in practice) reported feeling adequately prepared for independent practice. Although residency programs may have provided insufficient or inferior PM training or lacked a TTP curriculum, participants may have sought information on TTP on their own volition either from personal contacts, mentors, seminars or courses, etc. which made them feel prepared. A causal relationship cannot clearly be established between the feeling of preparedness for practice with the training provided by a residency program. We believe this finding likely speaks to a sense of apprehension and anxiety surrounding the process of identifying an ideal practice environment and securing the right job, rather than a deficiency in clinical knowledge. We do question, however, whether inadequate preparedness may contribute to the propensity for early-career changes in employment that we observed. A large percentage of our respondents (39%) changed jobs within their first 5 years in practice, with many citing dissatisfaction and undesirable practice type as the reasons behind their decision. Additionally, most respondents reported that training programs lacked education and guidance on the type of job/practice environment that may be the best fit for their trainees. Preparing for career in an academic or research institution was least likely to be addressed by training programs, and it is possible respondents accepted positions in clinical hospital settings because of a lack of preparation and expectations, in which they were ultimately unhappy.

Many of the findings of our survey are consistent with previous studies that demonstrate educational deficiencies in business training during residency across all specialties, despite being an ACGME requirement.[2] Studies in a myriad of specialties, including Family Medicine,[10-13] Internal Medicine,[14] Pediatrics, [15] Psychiatry,[16-18] Radiology,[19] General Surgery,[20-22] Otolaryngology,[23] Orthopedic Surgery,[24-25] Thoracic Surgery,[26] and Obstetrics/Gynecology,[27-28] have examined residents' and graduates' opinions on their preparation for practicing independently. In all of these specialties, residents identified a lack of formal education in business principles as one of the main factors that contributed to feeling inadequately prepared for TTP. Additionally, resident comprehension of fundamental medical economic concepts appears to be insufficient. The studies indicate a desire

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for more training focused on practice after residency, which echoes our findings. Our participants would have appreciated additional financial training, billing practices, working in and managing a private practice group, and how to supervise trainees (ie residents) or nurse anesthetists. In several specialties, specifically general surgery,[29] plastic surgery,[30] pediatrics,[15,31] family medicine,[32] psychiatry,[33] internal medicine,[34] and radiology,[35] interventions aimed at correcting these educational shortcomings have been shown to improve resident knowledge and satisfaction[36,37] The lack of mentorship identified in our study, as well as the feeling of ill preparedness when beginning the job search, were problems highlighted in other studies as well.[23]

Our study identifies a gap in anesthesiology residency business management education. The ACGME expects programs to provide education on PM, including "OR management, types of practice, job acquisition, financial planning, contract negotiations, billing arrangements, professional liability, and legislative and regulatory issues."[2] These topics are also components of the Maintenance of Certification in Anesthesiology™ Content Outline published by the American Board of Anesthesiology.[38] While major anesthesiology textbooks do contain chapters on OR and PM, the information is not comprehensive and can become quickly outdated with changes in legislation. In our literature search, we found 2 studies examining PM education related to anesthesiology. Gupta's survey to anesthesia residency program directors showed that 23 of 43 residency programs reported established career development curricula, each of which covered various topics related to TTP.[5] Przokora et al reported that most pain medicine fellows did not receive any business education in their fellowship and that there was a need for enhanced and structured business education in their pain fellowship.[6] In our survey, over 90% of respondents stated that there was no formal curriculum in their residency, and almost 60% of respondents reported that specific topics related to TTP were not addressed in residency. This was also true for the subgroup of respondents in practice < 10 years, of whom 38% reported that the specific PM topics outlined by the ACGME were not addressed in their residency training. If anesthesiology training programs are including business education in their curricula, either formally or informally, our results demonstrate that either the knowledge is not being retained by graduates or that graduates do not recognize that these topics are being taught. Therefore, training programs should prioritize creating a formal curriculum relevant to TTP and should do more to emphasize its importance. Notably, TTP has become such a great issue in general surgery that there is now a fellowship called: Transition to Practice Fellowship, although it was recently renamed Mastery in General Surgery.[39]

Additionally, our survey respondents were unfamiliar with the many resources offered by organizations outside of residency programs, including the ASA and the state societies. The ASA does include a PM section on its website (https://www.asahq.org/practicemanagement) and has a resident track at its annual conference on PM, but perhaps more can be done to promote this information. Anesthesiology organizations should consider publicizing their available resources specifically to senior residents, where possible with the assistance of the residency programs. Finally, mentorship programs need to be established to aid in the TTP, as almost three-quarters of our respondents did not have a mentor, and a majority expressed a mentorship program would have been beneficial during their transition to clinical practice.

Limitations

Our study is limited by a response rate of only 4.5% of the ASA membership cohort sampled. Email surveys tend to have lower response rates compared to other survey distribution modalities. Additionally, our survey was emailed through an intermediary and we cannot confirm with certainty that all the members emailed, saw or opened the email, or provided the most up-to-date email address. Thus, our response rate is an approximation, and it is possible it may have been higher if we knew the exact number of members who opened the email. The total number of responses, 1199, was larger than the anticipated sample size of 380. However, the possibility of responder bias and bias from self-selection rather than random selection exists. Members who had strong opinions about the topic were more likely to respond and therefore may be overrepresented in the sample, rendering us unable to generalize our results. Furthermore, our study is subject to nonresponse bias, and because the survey was anonymous and electronically distributed through the ASA, we have no way to compare responders to nonresponders. Characteristics of nonresponders that may have changed our survey results include the following: non-ASA members, working in an academic setting requiring resident education and scholarly productivity, younger participant age, fewer years in training, and possibly better education or implementation of TTP curricula in residency programs.

Some of the phrases in our questions such as "mentorship" or "TTP curriculum" were not explicitly defined, and thus, were open to the respondent's interpretation; therefore, the answers selected may not be an accurate representation of the respondents' actual experiences. For instance, some programs have a rotation called "TTP," while other training programs may name it differently. Also, providing an answer option for no recollection as well as a neutral reply (neither agree nor disagree) could have provided more accurate representation of the results.

Of note, there were questions in the survey about respondents' level of job satisfaction. Due to unintentional ambiguity in the wording of those questions, we cannot be certain if respondents answered those questions about the satisfaction of their current job, or the first job they took out of training. Since we were interested solely in the latter, we decided to exclude these responses from analysis in this manuscript. Additionally, the average time out of training for the study population was 17 years potentially leading to recall bias and/or data that is skewed away from current practices under ACGME requirements regarding education on PM. This should be considered in future studies. One possibility is to survey practicing anesthesiologists who are ≤ 5 years removed from training to get a more accurate reflection of their training experiences, as well as their experiences TTP.

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Conclusion

Our findings suggest that fundamental PM and business education topics are not adequately taught in residency training programs. Most respondents expressed a desire for more formal education and guidance in the areas of PM. Residency programs should consider adding TTP curricula and creating formal mentorship programs, while encouraging the use of external resources provided by ASA or state societies.

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References

1. Holak EJ, Kaslow O, Pagel PS. Facilitating the transition to practice: a weekend retreat curriculum for business-of-medicine education of United States anesthesiology residents. *J Anesth*. 2010; 24 (5):807-10.
2. American College of Graduate Medical Education. ACGME Program Requirements for Graduate Medical Education in Anesthesiology, IV.A.5.b.(1). American College of Graduate Medical Education, Chicago, IL, 2017;17-8.
3. Kamdar NV, de Gialluly PS. Academic Anesthesia: Innovate to Avoid Extinction. *Anesthesiology.* 2014;121(2):421-35.
4. Patel MB, Laudanski K, Pandharipande PP. An international career development survey of critical care practitioners. *Crit Care Med*. 2014;42(4):e300-3.
5. Laudanski K, Khanna AK. Remarks on the Transition from Training to Practice. *Am Soc Anesthesiol Monit*. 2012;76(8):80-1.
6. 6. Gupta R, Reinsel R. Career development guidance and mentorship during anesthesia residency training: an internet survey. *J Educ Perioper Med*. 2017 Apr 1;19(2):E606. eCollection 2017 Apr-Jun. PMID:28884135.
7. Przokora R, Antony A, McNeil A, et al. Do pain medicine fellowship programs provide education in practice management? A survey of pain medicine fellowship programs. *Pain Physician*. 2018 Jan;21(1):E43-8. PMID:29357339
8. Drennan J. Cognitive interviewing: verbal data in the design and pretesting of questionnaires. *J Adv Nurs*. 2003;42 (1):57-63.
9. Krejcie RV, Morgan DW. Determining Sample Size for Research Activities. *Educ Psychol Meas*. 1970;30(3):607-10.
10. Rose EA, Neale AV, Rathur WA. Teaching practice management during residency. *Fam Med*. 1999;31 (1):107-13.
11. Breitweiser D, Adye W, Arvidson M. Resident evaluation of current practice management training. *J Fam Pract*. 1981;13(7):1063-4.
12. Stone MA. Family physicians' evaluation of the practice management education received during residency training. *Fam Med*. 1994;26(2):101-5.
13. DeWitt DE, Robins LS, Curtis JR, Burke W. Primary care residency graduates' reported training needs. *Acad Med*. 2001;76(6):285.
14. Adiga K, Buss M, Beasley BW. Perceived, actual, and desired knowledge regarding Medicare billing and reimbursement. A national needs assessment survey of internal medicine residents. *J Gen Intern Med*. 2006;21 (5):466-70.
15. Piatt JP, Bartley DL, Jacobson AD, Rimsza ME. Practice management training for pediatric residents. *Am J Dis Child*. 1991;145 (3):299-301.
16. Stubbe DE, Thomas WJ. A survey of early-career child and adolescent psychiatrists: professional activities and perceptions. *J Am Acad Child Adolesc Psychiatry*. 2002;41(2):123-30.
17. Williams LL. Teaching residents practice-management knowledge and skills: an in vivo experience. *Acad Psychiatry*. 2009;33 (2):135-8.
18. Stubbe DE. Preparation for practice: child and adolescent psychiatry graduates' assessment of training experiences. *J Am Acad Child Adolesc Psychiatry*. 2002;41 (2):131-9.
19. DeQuesada IM, Chokshi FH, Mullins ME, Duszak R. Practice management and health policy education in radiology: an emerging imperative. *J Am Coll Radiol*. 105 Oct;12(10):1085-92. doi: 10.1016/j.jacr.2015.04.004.
20. Ridky J, Bennett T. Training surgery residents in group practice management. *Med Group Manage J*. 1991;38 (5):38-9.
21. Fakhry SM, Robinson L, Hendershot K, Reines HD. Surgical residents' knowledge of documentation and coding for professional services: an opportunity for a focused educational offering. *Am J Surg*. 2007;194 (2):263-7.
22. Klingensmith ME, Cogbill TH, Samonte K, Jones A, Malangoni MA. Practice administration training needs of recent general surgery graduates. *Surgery*. 2015 Sep;158(3):773-6. doi: 10.1016/j.surg.2015.02.028. PMID:26054322.
23. Patel AT, Bohmer RM, Barbour JR, Fried MP. National assessment of business-of-medicine training and its implications for the development of a business-of-medicine curriculum. *Laryngoscope*. 2005;115(1):51-5.
24. Gill JB, Schutt RC Jr. Practice management education in orthopaedic surgical residencies. *J Bone Joint Surg Am*. 2007;89 (1):216-9.
25. Miller DJ, Throckmorton TW, Azar FM, et al. Business and practice management knowledge deficiencies in graduating orthopedic residents. *Am J Orthop*. 2015 Oct;44(10):E373-8.
26. Chu D, Vaporciyan AA, Iannettoni MD, et al. Are there gaps in current thoracic surgery residency training programs? *Ann Thorac Surg*. 2016 Jun;101(6):2350-5. doi: 10.1016/j.athoracsur.2016.01.038. PMID:27085196.
27. Williford LE, Ling FW, Summitt RL Jr, Stovall TG. Practice management in obstetrics and gynecology residency curriculum. *Obstet Gynecol*. 1999;94 (3):476-9.
28. Porter B, Irive B, Ghamsary M. Maternal-Fetal Medicine Physician and Fellow Perceptions of Business in Medicine. *Am J Perinatol*. 2018 Jan;35(1):90-4. doi: 10.1055/s-0037-1606262. PMID:28838009.
29. Jones K, Lebron RA, Mangram A, Dunn E. Practice management education during surgical residency. *Am J Surg*. 2008;196(6):878-82.
30. Zarrabi B, Burce KK, Seal SM, et al. Business education for plastic surgeons: a systematic review, development, and implementation of a business principles curriculum in a residency program. *Plast Reconstr Surg*. 2017 May;139(5):1263-71. doi: 10.1097/PRS.0000000000003290. PMID:28098712.

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31. Babitch LA. Teaching practice management skills to pediatric residents. *Clin Pediatr*. 2006;45 (9):846-9.
32. Bayard M, Peeples CR, Holt J, David DJ. An interactive approach to teaching practice management to family practice residents. *Fam Med*. 2003;35 (9):622-4.
33. Wichman CL, Netzel PJ, Menaker R. Preparing psychiatric residents for the "real world": a practice management curriculum. *Acad Psychiatry*. 2009;33(2):131-4.
34. David RA, Reich LM. The creation and evaluation of a systems-based practice/managed care curriculum in a primary care internal medicine residency program. *Mt Sinai J Med*. 2005;72(5):296-9.
35. Chan S. Management education during radiology residency: development of an educational practice. *Acad Radiol*. 2004;11 (11):1308-17.
36. Crites GE, Schuster RJ. A preliminary report of an educational intervention in practice management. *BMC Med Edu*. 2004;4(1):15.
37. Shaffer R, Piro N, Katznelson L, Gephart MH. Practice transition in graduate medical education. *Clin Teach*. 2017 Oct;14(5):344-8. doi: 10.1111/tct.12593. PMID:28164441.
38. The American Board of Anesthesiology [Internet]. Raleigh (NC): The American Board of Anesthesiology; c2012 [cited 2018 Mar 4]. Booklet of Information: Certification and Maintenance of Certification. Available from: http://www.theaba.org
39. Richardson JD, Buckley BM, Shabahang MM, Giles WH, Sachdeva AK, Burns RP. From Transition to Practice to Mastery in General Surgery. *Bull Am Coll Surg*. 2018 (1):1.

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Abstract

Study Objective: To assess the experiences and attitudes of practicing anesthesiologists on practice/business management training received during residency and transitioning to practice through an online survey.

Design: An online survey, consisting of 39 questions developed by the American Society of Anesthesiologists (ASA) Committee on Young Physicians, was emailed to 26551 practicing US anesthesiologists who were ASA members.

Measurements: Questions about individuals' demographic information, transition to practice (TTP) experiences, medical business training, and TTP curricula in residency were included. Results were reported as descriptive statistics.

Main Results: A total of 1199 responses were obtained (response rate 4.5%), and68% reported working in private practice over an average of 17 years. Those practicing ≤10 years were more likely to have a TTP curriculum in residency compared to those in practice ≥11 years. Common problems reported by many participants regarding TTP included: lack of effective mentorship, inadequate residency curricula/education, and an unfamiliarity with available resources.

Conclusions: Although medical business practice education is now required by training programs, there is room for improvement in education. One potential solution is establishing TTP curricula in residency programs, which emphasize the business aspects of medicine and practice management, thus easing trainees from a training to practice environment.

Key Words: Transition to practice, Anesthesiology, Practice management

Figures

Table 1. *All Respondents' (N = 1199) Demographic and Clinical Practice Information*

Characteristic	All Respondents' Response, N (%)
Gender	
Male	823 (66)
Female	370 (31)
No response	6 (0.05)
Age (years)	
25-29	1 (0.1)
30-40	319 (27)
41-50	276 (23)
51-60	364 (30)
≥61	229 (19)
No response	10 (0.08)
Region of primary practice[a]	
Northeast	238 (20)
Southeast	309 (26)
Midwest	279 (23)
West	242 (20)
Southwest	120 (10)
No response	11 (0.09)
Primary type of practice	
Academic	327 (28)
Private	807 (69)
Government	21 (2)
Military	8 (0.7)
Locum tenens	10 (0.9)
No response	26
Do you supervise trainees (nurse anesthetists, anesthesia assistants)?	
Yes	895 (75)
No	295 (25)
No response	9 (0.02)
Fellowship trained	
Yes	521 (44)
No	672 (56)
No response	6 (0.05)

Characteristic	All Respondents' Response, N (%)
In which area is your specialty?	
Cardiac	148 (16)
Critical Care	87 (9)
Obstetrics	44 (5)
Pediatrics	157 (16)
Pain	66 (7)
Regional	42 (4)
Educational	1 (0.1)
Perioperative home	3 (0.3)
Trauma	1 (0.1)
Neuroanesthesia	25 (3)
Not applicable	421 (44)
Other (specify)[b]	59 (6)
No response	243 (2)
Years practicing since training	
<1	10 (0.08)
1-10	407 (34)
11-20	265 (22)
21-30	345 (28)
31-40	153 (12)
>41	11 (0.09)
No response	5 (0.04)
Changed jobs within first 5 years of practice	
Yes	470 (39)
No	725 (61)
No response	4 (0.03)
Reasons for changing jobs[c]	
Dissatisfaction	303 (30)
Burnout/stress	136 (14)
Not desired type of practice	205 (20)
Job location	248 (25)
Not applicable	481 (48)
Other	189 (15)
No response	167 (35)

[a] States included in the geographic regions are as follows:

- Northeast = VT, RI, PA, NY, NJ, NH, ME, MD, MA, DE, CT
- Southwest = TX, OK, NM, AZ
- West = WY, WA, UT, OR, NV, MT, ID, HI, CO, CA, AK
- Midwest = WI, SD, OH, NE, ND, MO, MN, MI, KS, IA, IN, IL
- Southeast = WV, Washington DC, VA, TN, SC, NC, MS, LA, KY, GA, FL, AR, AL

[b] Other fellowship areas reported include the following: ambulatory, transplant, research, geriatrics, health care policy, thoracic, palliative, and sleep medicine.

[c] Refers only to those respondents who reported they changed jobs within the first 5 years of practice.

Table 2 summarizes the responses to questions regarding participants' TTP experience and training. Of note, 72% (n = 860) did not have a mentor. Additionally, 91% (n = 1081) of respondents did not have a dedicated residency TTP curriculum. Most respondents (78%, n = 924) were unfamiliar with resources aimed to help in TTP/medical business management education. The society-sponsored courses or educational modules most familiar to respondents are listed in Table 3.

Figures *continued*

Table 2. *Questions on Transition to Practice Experience and Training from All Respondents (N = 1199).*

Question	All Respondents' Response, N (%)
Did you know where to look for jobs?	
Yes	787 (66)
No	408 (34)
No response	4 (0.03)
Did you know what questions to ask on your first job interview?	
Yes	541 (45)
No	652 (55)
No response	6 (0.05)
Did you have a mentor to help you transition to practice?	
Yes	335 (28)
No	860 (72)
No response	4 (0.03)
Did your residency offer a transition to practice curriculum?	
Yes	106 (9)
No	1087 (91)
No response	6 (0.05)
Which areas did your residency provide seminars, workshops, and/or lectures?[a]	
Contract negotiation	143 (12)
Interview preparation	88 (7)
Writing a CV and cover letter	94 (8)
Malpractice insurance/medicolegal liability	160 (14)
Billing, reimbursement, RVUs, etc.	105 (9)
Financial/retirement planning	141 (12)
Insurance, benefits, disability	110 (9)
Leadership skills	112 (9)
Managing work/life balance	79 (7)
Advancing in an academic career	104 (9)
Preparing for a career in research/grant writing	49 (4)
Legislative and regulatory issues	61 (5)
None of the above	695 (59)
No response	17 (1)
Have you taken a course to learn about the above skills?	
Yes	80 (7)
No	969 (81)
Not applicable	143 (12)
No response	7 (0.05)
Are you familiar with resources to help with transitioning to practice?	
Yes	268 (22)
No	924 (77)
No response	7 (1)
I received sufficient training in residency to transition to practice successfully	
Strongly Agree	154 (13)
Agree	426 (36)
Disagree	422 (35)
Strongly Disagree	191 (16)
No response	6 (0.05)
I felt adequately prepared for practice when I started	
Strongly Agree	329 (28)
Agree	555 (37)
Disagree	245 (21)
Strongly Disagree	63 (5)
No response	7 (0.05)

[a] More than one answer could be selected, so the response percentages will not add up to 100%.

Figures *continued*

Table 3. *Seminars, Courses, Retreats on Transitioning to Practice/Business Aspects of Medical Practice Identified by Participants (Which They Either Knew of or Attended), in Order of Frequency Mentioned*

American Society of Anesthesiologists (ASA) lectures, workshops, and online modules
ASA Practice Management conference
State component society of ASA
ASA Certificate in Business Administration
American College of Physician Executives (now American Association of Physician Leaders)
American Medical Association (AMA)
ASA Legislative conference
Masters of Business Administration (MBA)
Post Graduate Assembly in Anesthesiology (PGA)
Society for Education in Anesthesia (SEA)
State component society of AMA
American Society of Regional Anesthesia (ASRA)
Association of American Medical Colleges (AAMC)
Advanced Institute for Anesthesia Practice Management (AIAPM)
Anesthesia Administration Assembly of the Medical Group Management Association (MGMA-AAA)
American Society of Interventional Pain Physicians (ASIPP)
Society for Pediatric Anesthesia (SPA)
Beyond the Exam Room course
Medscape Business of Medicine
Society of Critical Care Medicine (SCCM)
LinkedIn
Student Doctor Network (SDN)
Facebook group of women physicians

When asked if their residency program provided education on 12 aspects of PM (specified by the ACGME), a majority (59%) reported that none were addressed. Malpractice insurance/medicolegal liability (14%), contract negotiation (12%), and financial/retirement planning (12%) were identified as being addressed the most by training programs. Preparing for a career in research/grant writing (4%) and legislative/regulatory issues (5%) were least addressed.

The ACGME guidelines first required PM topics as part of training programs' curricula in 2008. With the overwhelming response from anesthesiologists in practice > 11 years, we performed a subgroup analysis of the 414 respondents in practice for ≤ 10 years. The mean age of practitioners was 38.2 years. They represented 48 states, with the majority (243, 59%) working in private hospitals and 147 (36%) in academic settings. TTP curricula were more likely to be offered in residency to participants in practice ≤ 10 years compared to those in practice ≥ 11 years (16% vs. 5%, $P < .001$). Of those in practice ≤ 0 years, 38% reported that their residency did not address any of the 12 business management topics. Furthermore, compared to the those ≥ 11 years in practice, the ≤ 10-year group received more training in residency in the following areas: contract negotiation, legislative procedures, interview preparation, CV development, malpractice insurance, billing, financial planning, insurance benefits, leadership skills, and managing work/life balance (Table 4).

Figures *continued*

Table 3. *Comparison of Responses to Residency Curriculum and Educational Topics Covered Between Respondents ≤ 10 Years in Practice and ≥ 11 Years in Practice Who Responded "Yes" to Their Program Offering a Formal Transition to Private Practice Curriculum.*

Question	No. of Respondents, N (%)		*P* value
	≤10 years (n=417)	≥11 years (n=774)	
Did your residency program offer a formal transition to practice curriculum?	68 (16)	38 (5)	<.001
My residency program addressed the following topics			
Contract negotiation	101 (24)	41 (5)	<.001
Advancing in an academic career	40 (10)	64 (8)	.46
Preparing for a career in research	17 (4)	32 (4)	.94
Legislative and regulatory issues	35 (8)	25 (3)	<.001
Interview preparation	43 (49)	45 (6)	.005
Writing a CV and cover letter	45 (11)	49 (6)	.007
Malpractice insurance/medicolegal liability	90 (22)	70 (9)	<.001
Billing and reimbursement	75 (18)	29 (4)	<.001
Financing planning	94 (23)	47 (6)	<.001
Insurance, benefits, disability	62 (15)	48 (6)	<.001
Leadership skills	52 (12)	60 (8)	.009
Managing work/life balance	54 (13)	25 (3)	<.001
None of the above	161 (39)	531 (69)	<.001

Overall, more participants felt inadequately prepared by their training program to TTP (51.1%, n=613), while 48.3% (n=580) felt adequately prepared for independent clinical practice. When comparing subgroups, participants practicing for <10 years reported feeling sufficiently trained to TTP (n=226), while those in practice >11 years did not feel sufficiently trained to TTP (n=426). However, both groups reported to be adequately prepared for independent practice (n=333, ≤10-year practice group, and n=551, ≥11-year practice group).

Two open-ended questions addressed: (1) what would have been helpful during the TTP, and (2) what made TTP difficult. There were 901 participants who provided free-text responses to the former, while 918 provided responses to the latter. The most commonly identified areas that would have been beneficial during the TTP were: a residency curriculum/course addressing all the topics listed within the domain of TTP, mentorship programs, medical business courses, PM guidance, financial and billing courses, a private practice residency rotation, and guidance on supervising and working with nurse anesthetists.

Appendix *continued*

Appendix A. *Survey questions.*

transition to practice

Consent Script/Information Sheet

Project Title: Transition to Practice in Anesthesiology: Survey of Practicing Anesthesiologists on Their Experience

Principal Investigator: Catherine M. Kuza, MD

This survey is being conducted by Catherine M. Kuza, MD, who is an Assistant Professor of Anesthesiology at the University of Southern California and member of the American Society of Anesthesiologists Committee of Young Physicians. We hope to learn about the attitudes of practicing anesthesiologists on job satisfaction, current practice information, business training received during residency, and their experience with transitioning to practice. This research will provide information on how to improve business education and determine what resources are needed to smooth the transition to practice.

If you agree to participate, you will complete a brief survey. You will be asked about basic demographics (age, gender, etc.), current practice information, business training received during residency, and your experience with transitioning to practice. The survey will take about 5-10 minutes to complete.

There are no known risks associated with completing the survey. There is/are no direct benefit/s to participation; however, the knowledge obtained from this study may help develop and improve resources available to residents and junior faculty to ease the transition from training into practice.

Participation is voluntary. You can refuse to complete the survey or skip any questions, without any consequence to you. No names or personal identifying information will be collected in the survey. The online website with the survey ensure anonymity. The surveys collected during this project will be destroyed as soon as the data is analyzed.

You will not be paid for completing the survey.

If you have specific questions about the study, you may contact:
Catherine M. Kuza, MD

Catherine.kuza@med.usc.edu

(323)442-7400

If you have any questions about your rights as a research participant, you may contact the Health Sciences Institutional Review Board Office at 323-223-2340 or email at irb@usc.edu. This project

Appendix *continued*

has been granted an exemption by the USC Health Sciences IRB.

1. What is your gender?

- ◯ Male
- ◯ Female

2. What is your age in years?

3. What is your relationship status?

- ◯ Married
- ◯ Single
- ◯ Divorced
- ◯ Domestic partnership
- ◯ Other
- ◯ Decline to state

4. Do you have any children?

- ◯ Yes
- ◯ No

5. In which state do you primarily practice?

6. In what type of practice do you primarily work?

- ◯ Academic
- ◯ Private
- ◯ Government
- ◯ Military
- ◯ Locums tenens

Other (please specify)

7. In your practice, do you supervise trainees, CRNAs, AA, etc.?

- ◯ Yes
- ◯ No

8. What is the average number of hours you work per week?

Appendix *continued*

9. Are you fellowship trained?

- ○ Yes
- ○ No

10. If yes, what is your fellowship training in? (check all that apply)

- ☐ Cardiac
- ☐ Critical Care
- ☐ Obstetrics
- ☐ Pediatrics
- ☐ Pain
- ☐ Regional
- ☐ Educational
- ☐ Perioperative home
- ☐ Neuroanesthesia
- ☐ Trauma
- ☐ Not applicable
- ☐ Other (please specify)

11. How many years have you been in practicing since graduating residency/fellowship?

12. Did you change your job in the first 5 years of practice?

- ○ Yes
- ○ No

13. How many different jobs have you had since your first position (excluding your first position)?

Appendix *continued*

14. Reason for changing jobs: (check all that apply)

- [ ] Dissatisfaction
- [ ] Burnout/stress
- [ ] Not type of practice you thought you wanted to work in
- [ ] Job location
- [ ] Not applicable

Other (please specify)

15. When you were looking for your first job, did you know where to look for available jobs?

- ( ) Yes
- ( ) No

16. Did you know what kind of questions to ask during your first job interview?

- ( ) Yes
- ( ) No

17. Did you have a mentor that helped you transition to your first job?

- ( ) Yes
- ( ) No

18. Did your residency program offer a transition to practice curriculum?

- ( ) Yes
- ( ) No

Appendix *continued*

19. In which of the following areas did your residency program provide seminars, workshops, and/or lectures?(check all that apply)

- [ ] Contract negotiation
- [ ] Interview preparation
- [ ] Writing a CV and coverletter
- [ ] Malpractice insurance/medicolegal liability
- [ ] Billing, reimbursement, RVUs, etc.
- [ ] Financial planning/retirement planning
- [ ] Insurance, benefits, disability
- [ ] Leadership skills
- [ ] Managing work/life balance
- [ ] Advancing in an academic career
- [ ] Preparing for a career in research/grant information and resources
- [ ] Legislative and regulatory issues
- [ ] None of the above

Other (please specify)

20. If you did not receive any of these skills during training, was there a course or retreat you signed up for to gain these skills?

- ( ) Yes
- ( ) No
- ( ) Not applicable

21. If yes, please specify which course/retreat/seminar/etc.:

22. Are you familiar with resources that can help prepare you for transition to practice (i.e. society workshops, on-line workshops, face-to-face workshops offered through recruiters, etc.)?

- [ ] Yes
- [ ] No

If yes, please specify

Appendix *continued*

23. I received sufficient training in residency/fellowship to prepare me to transition to practice successfully.

- ◯ Strongly agree
- ◯ Agree
- ◯ Disagree
- ◯ Strongly disagree

24. I felt adequately prepared for independent practice when I started.

- ◯ Strongly agree
- ◯ Agree
- ◯ Disagree
- ◯ Strongly disagree

25. What would have been helpful to you during your transition from training into practice?

26. What issues made your transition to practice difficult?

27. I am satisfied with my current job.

- ◯ Strongly agree
- ◯ Agree
- ◯ Disagree
- ◯ Strongly disagree
- ◯ Not applicable

28. I am satisfied with my work-life balance.

- ◯ Strongly agree
- ◯ Agree
- ◯ Disagree
- ◯ Strongly disagree
- ◯ Not applicable

29. My job is stressful.

- ◯ Strongly agree
- ◯ Agree
- ◯ Disagree
- ◯ Strongly disagree
- ◯ Not applicable

Appendix *continued*

30. I have sufficient case variety at work.

- Strongly agree
- Agree
- Disagree
- Strongly disagree
- Not applicable

31. I am happy with the hours I work in a general week.

- Strongly agree
- Agree
- Disagree
- Strongly disagree
- Not applicable

32. My current salary is fair given my prior training and experience.

- Strongly agree
- Agree
- Disagree
- Strongly disagree
- Not applicable

33. It is overwhelming to teach residents.

- Strongly agree
- Agree
- Disagree
- Strongly disagree
- Not applicable

34. I am overwhelmed with the pressure to produce scholarly activities.

- Strongly agree
- Agree
- Disagree
- Strongly disagree
- Not applicable

35. My call burden too high.

- Strongly agree
- Agree
- Disagree
- Strongly disagree
- Not applicable

Appendix *continued*

36. I have good camaraderie with my coworkers.

- ◯ Strongly agree
- ◯ Agree
- ◯ Disagree
- ◯ Strongly disagree
- ◯ Not applicable

37. I have a good relationship with my superiors.

- ◯ Strongly agree
- ◯ Agree
- ◯ Disagree
- ◯ Strongly disagree
- ◯ Not applicable

38. I am considering changing to a different medical profession.

- ◯ Strongly agree
- ◯ Agree
- ◯ Disagree
- ◯ Strongly disagree
- ◯ Not applicable

39. I am considering changing to a different non-medical profession.

- ◯ Strongly agree
- ◯ Agree
- ◯ Disagree
- ◯ Strongly disagree
- ◯ Not applicable