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Building capacity for ATLS trauma education: role of nurse practitioners and physician assistants

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ABSTRACT

Objectives Advanced Trauma Life Support (ATLS) focuses on care of injured patients in the first hour of resuscitation. Expanded demand for courses has led to a concurrent need for new instructors. Nurse practitioners and physician assistants (NPs/PAs) work on trauma services and duties include patient, staff, and outreach education. The goal of this project was to assess NP/PA self-reported knowledge and skills pertinent to ATLS and identify potential barriers to becoming instructors.

Materials This was a voluntary 91-question survey emailed to NP/PA lists obtained from professional societies and online social media channels. NPs/PAs completed a survey reflecting self-reported knowledge, experience, comfort level, and barriers to teaching ATLS interactive discussions and skills. Responses were recorded using a Likert scale and results were documented as percentages. Number of years of experience versus perceived knowledge and comfort teaching were compared using a χ^2 test of independence.

Results There were 1696 completed surveys. Most NPs/PAs thought they had adequate knowledge and experience to teach interactive discussions and skills. Those with more years of experience and those who completed more ATLS courses had higher percentages. The number 1 barrier to teaching was lack of formal teaching experience followed by perceived hierarchy concerns. Experience and comfort with skills that fell below 50% were pediatric airway (49.5%), needle and surgical cricothyrotomy (49.8% and 44.8%), diagnostic peritoneal lavage (21.6%), and venous cutdown (20.8%).

Conclusion NPs/PAs with experience in trauma reported having the knowledge and skill to teach ATLS. A majority are comfortable teaching interactive discussions and skills for which they are knowledgeable. The primary barrier to teaching was lack of formal teaching experience, which is covered in the ATLS Instructor course. Training NPs/PAs to become instructors would increase the instructor base and allow for increased promulgation of ATLS and trauma education.

Level of evidence IV.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ The Advanced Trauma Life Support (ATLS) course has experienced increased demand without a concomitant increase in available instructors.

⇒ The need for additional instructors has resulted in a pent-up demand for ATLS courses.

WHAT THIS STUDY ADDS

⇒ Nurse practitioners and physician assistants employed by trauma services and properly vetted have the knowledge and skill to become part of the instructor pool.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Our study confirms that this pool of individuals has the knowledge and comfort needed to teach ATLS. Acceptance of this group of knowledgeable practitioners as ATLS instructors will allow expanded access to courses.

INTRODUCTION

The organized delivery of trauma care in the USA began approximately 60 years ago with the 1966 publication of Accidental Death and Disability: The Neglected Disease of Modern Society.[1] Fourteen years later, care in the first hour was standardized with development of the first Advanced Trauma Life Support (ATLS) course. Conceived by Dr James Styner after an airplane crash in Nebraska, developed by a group of physicians and supported by the Lincoln Nebraska Medical Education Foundation in 1976, the course was embraced by the American College of Surgeons Committee on Trauma in 1980.[2] Since that time, the course has undergone many changes and iterations and is now in its 10th edition.[3]

There have been many pivotal changes since 1980. At the inception, all certified instructors were surgeons. As content expanded in scope and promulgated globally, it became evident that other experts had knowledge and skill to provide effective instruction. The instructor pool grew to include consultants in emergency medicine, neurosurgery, orthopedics, and anesthesia. Over time, resident surgical physicians became eligible to become instructors under a carefully constructed educational format to ensure course quality. The addition of educational theory to the instructor course in the 9th edition in 2012 added rigor and the concepts relevant to adult learning to enhance instruction and minimize variability.[4 5] Similarly, at the outset, only physician providers could receive credit for ATLS instruction. In 2017, eligibility for credit was expanded to physician assistants (PA) and nurse practitioners (NP).

As of 2022, over 1 million physicians and advanced practice healthcare professionals have been trained in ATLS in 86 countries and course demand remains strong.[6] ATLS has become a respected global course with the foundational premise of treating the greatest threat to life first and emphasizing a safe approach to care of the injured patient. In many locations in North America, ATLS certification is required to maintain credentials. Expanded demand, pressures of clinical practice for many instructors, required instructor to student ratios to ensure educational rigor, and the need to maintain a knowledgeable and skilled instructor base have placed a growing burden on ATLS course delivery. To address this issue, we propose that the trauma NP/PA workforce is ideally suited to become ATLS instructors.

The PA and NP professions began in the 1960s and quickly gained traction as desirable career paths. Currently, there are greater than 450 000 licensed PAs and NPs in the USA.[7 8] These professionals complete an undergraduate degree followed by advanced degree training of 2–3 years. PAs complete a minimum of 2000 clinical hours during their training. NPs must complete a minimum of 500 clinical hours. Training is followed by a certifying examination and practitioners must be licensed. PAs must recertify every 10 years with testing focused on general medical knowledge. NPs must pass one of two certification examinations and must recertify through repeat testing or by providing proof of a minimum of 1000 hours of clinical practice and 100 hours of continuing education in each 5-year certification cycle. Additionally, fellowship opportunities for PAs and NPs related to practice areas of interest are increasing in number and popularity. In the USA, practice regulations for PAs and NPs are determined at the state level.

Rationale

Given the growing burden of injury, presence of medical deserts in many geographic locations, and the growing requirement for successful ATLS course completion for hospital credentialing, readily available trauma training through expansion of the instructor base for ATLS is needed.

Objective

The primary goal of this project was to assess self-reported knowledge and skills of PAs and NPs working in the trauma environment. We also sought to identify the perceived barriers to PAs and NPs becoming ATLS instructors.

MATERIALS AND METHODS AND STUDY DESIGN

The Advanced Practice Providers (APP) Survey on becoming ATLS instructors was created from items covered in an ATLS course and asks whether PAs and NPs have the knowledge, experience, and comfort level to teach ATLS interactive discussions and skills, and what they perceived as barriers to teaching. It comprised 91 questions determined by APP and physician experts. Prior to distribution, the survey tool was piloted with a small group of trauma APPs. The study involved a convenience sample with surveys distributed through the American Academy of Physician Assistants, constituent/specialty groups of the American Association of Surgical Physician Assistants and the Society of Emergency Medicine Physician Assistants. Additionally, the surveys were distributed via the largest LinkedIn APP and PA groups and Facebook PA groups. Certified registered nurse anesthetists were not included in this study.

Questions concerning knowledge, experience, and comfort were scored on a Likert scale[1–5] from Strongly disagree to Strongly agree with Neither agree nor disagree as the neutral category. There was an opportunity for open commentary. The Survey consisted of 91 questions regarding trauma practice, having adequate knowledge to teach ATLS, being comfortable leading didactic lessons and discussions, and being comfortable teaching ATLS skills (Survey Tool, online supplemental file 1).

We sought to determine the following:

1. What percent of PA and NP providers think they have adequate knowledge to teach ATLS courses?
2. Are most PA and NP providers comfortable leading interactive discussions?
3. Are most PA and NP providers comfortable teaching ATLS skills?
4. Are knowledge and comfort teaching related to number of times taking ATLS and number of years of trauma experience?
5. What are the perceived barriers to acceptance of PAs and NPs as ATLS instructors?

Table 1 Description of n=1696 survey participants

Characteristics	Mean±SD (95% CI) or n (%)
Mean ATLS course completions	1.86±1.18 (1.81, 1.91) Range: 1–12 times
Median ATLS course completions	1 (1, 2) Range: 1–12 times
How many years have you worked as an APP?	
Missing	1 (0.1)
1 year	67 (4.0)
2 years	92 (5.4)
3 years	109 (6.4)
4 years	115 (6.8)
5 years	94 (5.5)
>5 years	1281 (71.8)
Years of trauma experience	
Missing	204 (12.0)
1 year	190 (11.2)
2 years	128 (7.5)
3 years	144 (8.5)
4 years	125 (7.4)
5 years	144 (8.5)
>5 years	761 (44.9)
What level of trauma center are you in?	
Missing	48 (2.8)
I	577 (34.0)
II	433 (25.5)
III	245 (14.4)
Non-Designated	241 (14.2)
Other	152 (9.0)
I am comfortable leading the interactive discussions for which I have experience.	
Missing	10 (0.6)
Yes	1414 (83.4)
No	272 (16.0)
I am comfortable teaching the skills for which I have experience.	
Missing	18 (1.1)
Yes	1478 (87.2)
No	200 (11.8)
I am comfortable leading the skill stations for which I have experience.	
Missing	14 (0.8)
Yes	1526 (90.0)
No	156 (9.2)

APP, advanced practice provider; ATLS, Advanced Trauma Life Support.

Table 2 I have the knowledge to teach the following topics (n=1696)

Topic	Interactive discussions			
	Strongly disagree/Disagree n (%)	Neither agree nor disagree (Neutral) n (%)	Strongly agree/Agree n (%)	Missing n (%)
Airway	216 (12.7)	204 (12.0)	1261 (74.4)	15 (0.9)
Shock	97 (5.7)	188 (11.1)	1392 (82.1)	19 (1.1)
Thoracic trauma	281 (16.8)	308 (18.5)	1058 (63.4)	21 (1.3)
Abdominal and pelvic trauma	213 (12.6)	308 (18.1)	1152 (67.9)	23 (0.9)
Head trauma	191 (11.3)	263 (15.5)	1220 (71.9)	23 (1.4)
Spine and spinal cord trauma	64 (3.8)	218 (12.9)	1035 (61.0)	19 (1.1)
Musculoskeletal trauma	117 (6.9)	198 (11.7)	1362 (80.3)	19 (1.1)
Thermal injury	275 (16.2)	380 (22.4)	1023 (60.3)	18 (1.1)
Pediatric trauma	576 (34.0)	407 (24.0)	698 (41.2)	15 (0.9)
Geriatric trauma	257 (15.2)	318 (18.8)	1105 (65.2)	16 (0.9)
Trauma in pregnancy and intimate partner violence	487 (28.7)	462 (27.2)	717 (42.3)	30 (1.8)
Transfer to definitive care	117 (6.9)	206 (12.1)	1341 (79.1)	32 (1.9)

For additional analyses, Strongly agree and Agree were combined to create the answer of Yes for each of the questions, while Strongly disagree and Disagree were combined to create the answer of No to determine the knowledge, and Neither agree nor disagree and Missing were retained as separate categories.

Statistical analysis

Data are presented as frequency and percent or mean±SD. X^2 test of independence and Fisher's exact test were used to determine the association of ATLS completion frequency and comfort, knowledge, and experience to teach ATLS. χ^2 test of independence was used to determine the association of the number of years of trauma experience with comfort, knowledge, and experience to teach ATLS. Analyses were performed using SAS V.9.4, Excel, and GraphPad Prism. Due to the large number of surveys returned, $p<0.0001$ was considered significant.

RESULTS

A total of 2650 PAs and NPs opened the survey, 954 did not complete the survey, while n=1696 completed surveys for a response rate of 64%. A majority of those who did not complete the survey replied that they did not practice in trauma or a trauma-related field. There were greater than 2500 comments from participants. The survey revealed:

1. Most PA and NP providers think they have adequate knowledge to teach ATLS courses.
2. Most PA and NP providers are comfortable leading didactic lectures and discussions.
3. Most PA and NP providers are comfortable teaching ATLS skills.
4. Those who have taken ATLS multiple times are more comfortable teaching ATLS than those taking it fewer times.
5. Those who have more years of trauma service are more comfortable teaching ATLS than those with fewer years.
6. The primary barrier to teaching was lack of formal teaching experience. This was followed by perceived hierarchy concerns.

Demographics

Of 1696 PAs and NPs, 1281 (71.8%) had worked >5 years as an NP/PA and one person did not answer. Seven hundred and sixty-one (44.9%) had >5 years of trauma service experience (table 1). Two hundred and four respondents (12.1%) did not answer the trauma experience question but instead indicated

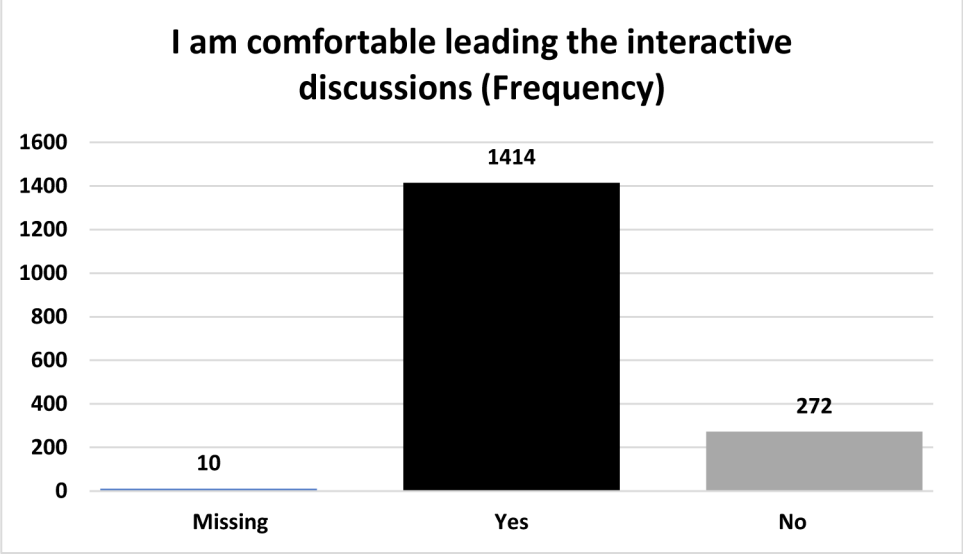

Figure 1 Comfort level teaching interactive discussion.

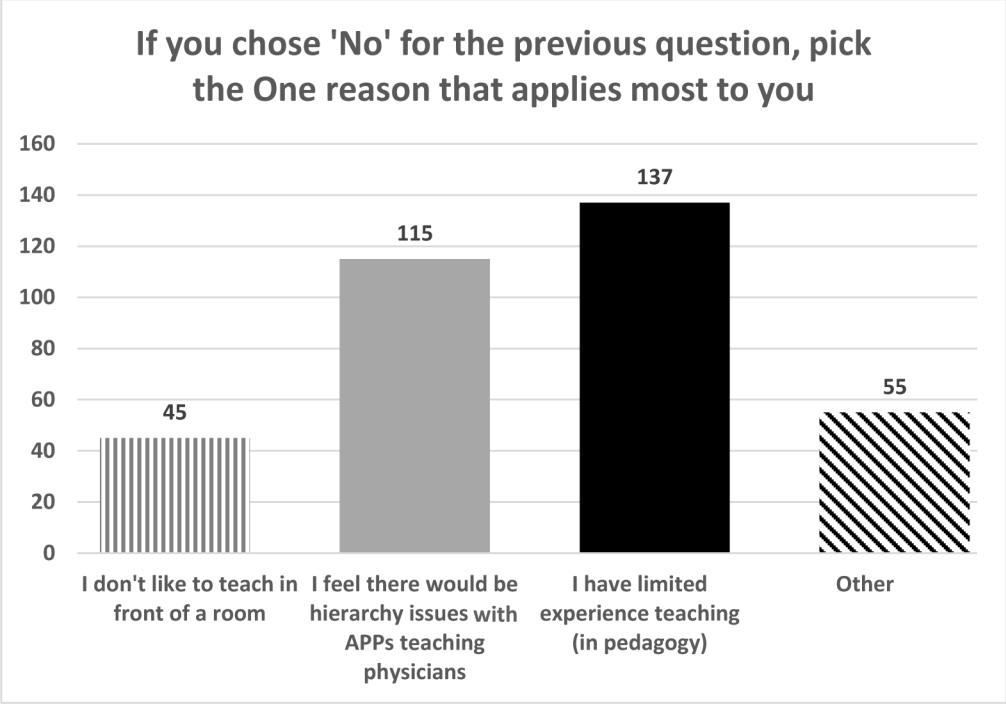

Figure 2 Reasons given for those not comfortable leading interactive discussions. APP, advanced practice provider.

they worked in a trauma-related specialty, for example, neurosurgery or orthopedics.

Of all the participants, 1690 responded that they had previously taken an ATLS class; six did not answer that question but did answer most of the Likert scale questions and thus were included in the final dataset. When asked how many times they had taken ATLS, most participants answered with a number, but some gave a text answer such as four to five times, in which case the lowest number was used to determine the mean number of times that ATLS was taken. Using this rubric, the majority of respondents had previously completed one ATLS course (n=1093, 51.34%; online supplemental table) with a mean frequency of 1.86 completions and a median frequency of 1 completion (table 1).

For this article, we grouped our responses into four categories: (1) Missing, (2) Strongly disagree/Disagree, (3) Neutral, and (4) Strongly agree/Agree. The interactive discussion topics that scored greater than 70% for knowledge were: airway, shock, head trauma, musculoskeletal, and transfer to definitive care. Knowledge topics that scored between 50% and 70% were thoracic trauma, abdominal and pelvic trauma, spine and spinal cord injury, thermal injury, and geriatric trauma. Topics that fell below 50% were pediatric trauma, trauma in pregnancy and intimate partner violence (table 2).

Comfort with teaching interactive discussions

Of the 1696 participants, 1414 (83.4%) said, 'I am comfortable leading the interactive discussions for which I am knowledgeable' (figure 1). Two-hundred and seventy-two (16.0%) said they were not comfortable and 10 (0.6%) did not answer. Of those who said 'No' (n=272), 137 (50.4%) indicated that lack of teaching experience was a barrier while 115 (42.3%) thought hierarchy issues in teaching physicians were the primary barrier (figure 2).

Teaching skills

Tables 3 and 4 outline the reported knowledge for teaching ATLS skills and adjuncts. Of the 32 skills and eight adjuncts queried, the subjects with reported lower level of knowledge required to teach were pediatric airway (49.5%), needle cricothyrotomy (49.8%), surgical cricothyrotomy (44.8%), diagnostic peritoneal lavage (21.6%), subclavian venipuncture (48.4%), venous cutdown (20.8%), pericardiocentesis (25.9%), FAST (48.6%) (Focused assessment with sonography in Trauma), and e-FAST (44.5%) (Extended-FAST).

Similarly, the majority of PAs and NPs (1348, 79.5%) said, 'I am comfortable teaching the skills listed above for which I have experience' (figure 3). n=321 stated that they were not comfortable teaching skills. The lack of teaching experience was the main reason for not being comfortable (n=159, 49.5%), followed by hierarchy concerns regarding PAs and NPs teaching physicians (n=92, 28.7%) (figure 4).

PA and NP comfort level and number of times taking ATLS

Higher frequency of ATLS course completion was associated with higher comfort teaching interactive discussions and skill sessions (figure 5). Most p values were statistically significant. Those who had completed ATLS ≥3 times tended to be more comfortable teaching skills that were considered more advanced, such as teaching needle decompression, interpretation of chest X-rays, and finger and tube thoracostomy.

APP's comfort level increased with their years of trauma experience

Those with >5 years of trauma experience (761, 44.9%) were more comfortable leading the interactive discussion compared with those with 0–1 year (19.8%) and 2–5 years (38.2%) of trauma experience (p<0.0001). Similarly, those who had ≥5 years of trauma experience were more comfortable teaching the more advanced topics than those who had 0–1 year or 2–5 years of trauma experience (table 5).

Table 3 I have the knowledge and experience to teach the following topics (n=1696)

Topic	Strongly disagree/Disagree	Neither agree nor disagree	Strongly agree/Agree	Missing
Basic airway				
Nasopharyngeal airway	94 (5.5)	103 (6.1)	1490 (87.9)	9 (0.5)
Safe use of suction	94 (5.5)	70 (4.1)	1578 (93.0)	14 (0.8)
Oropharyngeal	35 (2.1)	71 (4.2)	1559 (91.9)	31 (1.8)
One-person bag valve mask	21 (1.2)	46 (2.7)	1619 (95.4)	10 (0.6)
Two-person bag valve mask	19 (1.1)	43 (2.5)	1621 (95.6)	18 (1.1)
Advanced airway				
Laryngeal mask airway	162 (9.6)	208 (12.3)	1312 (77.4)	14 (0.8)
Laryngeal tube airway	192 (11.3)	239 (14.1)	1250 (73.7)	15 (0.9)
Endotracheal intubation	221 (13.0)	208 (12.3)	1250 (73.7)	17 (1.0)
Pediatric airway	556 (32.8)	281 (16.6)	839 (49.5)	20 (1.2)
Needle cricothyrotomy	504 (29.7)	331 (19.5)	845 (49.8)	16 (0.9)
Surgical cricothyrotomy	544 (32.1)	361 (21.3)	760 (44.8)	31 (1.68)
Breathing				
Breathing assessment	20 (1.2)	37 (2.2)	1622 (95.6)	17 (1.0)
Chest X-ray interpretation	93 (5.5)	267 (15.7)	1172 (69.1)	18 (1.1)
Finger and tube thoracostomy	317 (18.7)	267 (15.7)	1094 (64.5)	18 (1.1)
Needle decompression	165 (9.7)	165 (9.7)	1332 (78.5)	34 (2.0)
Circulation				
Pediatric resuscitation tape use	250 (14.7)	191 (11.3)	1241 (73.1)	14 (0.8)
Wound packing	47 (2.8)	119 (7.0)	1518 (89.5)	12 (0.7)
Tourniquet use	45 (2.7)	106 (6.3)	1524 (89.9)	21 (1.3)
Traction splint application	138 (8.1)	215 (12.7)	1324 (78.1)	19 (1.1)
Interosseous placement (tibia)	83 (4.9)	134 (7.9)	1464 (86.3)	15 (0.9)
Interosseous placement (humeral)	131 (7.7)	222 (13.1)	1326 (78.2)	17 (1.0)
Pelvic binder	90 (5.3)	168 (9.9)	1421 (83.8)	17 (1.0)
Diagnostic peritoneal lavage	905 (53.4)	412 (24.3)	367 (21.6)	12 (0.7)
Femoral venipuncture	405 (23.9)	265 (15.6)	1010 (59.6)	16 (0.9)
Subclavian venipuncture	538 (31.7)	324 (19.1)	821 (48.4)	13 (0.8)
Venous cutdown	938 (55.3)	385 (22.7)	352 (20.8)	21 (1.2)
Pericardiocentesis using ultrasound	854 (50.4)	570 (33.6)	439 (25.9)	13 (0.8)
Disability				
Focused neurological examination	46 (2.7)	113 (6.7)	1520 (89.6)	17 (1.0)
Evaluation of the cervical spine	877 (51.7)	117 (6.9)	1514 (89.3)	12 (0.7)
Helmet removal	116 (6.8)	209 (12.3)	1357 (80.0)	14 (0.8)
Detailed neurological examination	42 (2.5)	88 (5.2)	1552 (91.5)	14 (0.8)
Removal of spine board	94 (5.5)	103 (6.1)	1490 (87.9)	9 (0.5)
Evaluation of head CT scans	291 (3.1)	117 (6.9)	1514 (82.3)	17 (0.7)
Evaluation of the cervical spine	877 (51.7)	117 (6.9)	1514 (86.3)	12 (0.7)
Other				
Transfer communication	42 (2.5)	88 (5.2)	1552 (91.5)	14 (0.8)

DISCUSSION

Results of our survey reveal that there is a large pool of experienced NPs/PAs who have the potential knowledge and skill to become instructor candidates. Completed surveys show that most NPs/PAs practicing in a trauma specialty feel comfortable teaching most interactive discussions and skill stations, especially those who have taken more ATLS courses and those who had >5 years of trauma service experience. The two reasons most cited

Table 4 I have enough knowledge to teach adjuncts and secondary survey (n=1696)

Question	Strongly disagree/Disagree n (%)	Neither agree nor disagree n (%)	Strongly agree/Agree n (%)	Missing n (%)
Focused assessment wih sonography in Trauma (FAST)	549 (32.4)	311 (18.3)	824 (48.6)	17 (0.7)
Extended-FAST (e-FAST)	578 (34.1)	337 (19.9)	755 (44.5)	26 (1.5)
How to interpret thoracic and lumbar spine images	637 (38.7)	361 (21.3)	967 (57.0)	8 (0.5)
How to interpret pelvis images	326 (19.2)	325 (19.2)	1042 (61.4)	13 (0.8)
Performance of secondary survey	47 (2.8)	80 (4.7)	1549 (91.3)	20 (1.2)
How to reduce and splint a fracture	192 (11.3)	224 (13.2)	1264 (74.6)	16 (0.9)
Application of a C-collar	31 (1.8)	50 (2.9)	1599 (94.3)	16 (0.9)
Evaluate the presence of compartment syndrome	87 (5.1)	201 (11.9)	1392 (82.1)	16 (0.9)

C-collar, cervical collar.

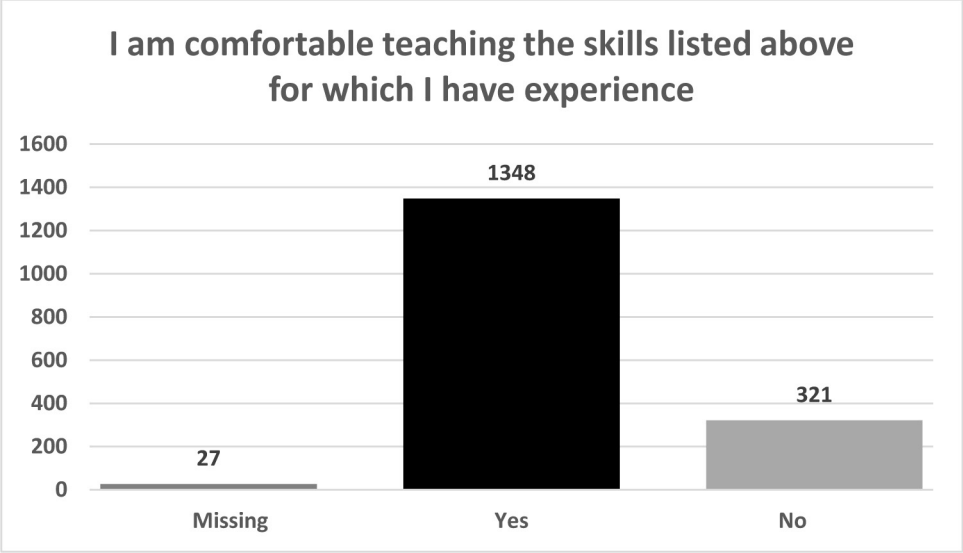

Figure 3 Comfort with teaching skills for which I have experience.

for being uncomfortable were due to comfort teaching in general (50.4% interactive discussions; 49.5% skills) and concern that there would be hierarchy issues with PAs and NPs teaching physicians. Hierarchy concerns were also expressed by physicians when an informal poll was conducted at an ATLS Committee on Trauma global session in 2019. The ATLS Instructor course is designed to impart general teaching methodology and specific approaches relevant to ATLS and many new physician instructors come to the instructor course with reported discomfort teaching in more formal settings. Many courses in medicine are taught by non-physician providers, such as Advanced Cardiac Life Support (ACLS) and Pediatric Advanced Life Support (PALS), thus perceived hierarchy issues should not deter from or interfere with moving forward with using PAs and NPs as instructors for ATLS.

NPs/PAs were more comfortable teaching skills which may reflect their day-to-day use of these skills. Most regularly engage in teaching many skills to peers during the onboarding process, to physicians in training, and in other informal teaching situations. Several skills, such as pediatric airway, needle cricothyrotomy, surgical cricothyrotomy, and subclavian venipuncture, were listed as being 'not knowledgeable enough'. We think that teaching enhances knowledge and refines skills, further supporting the use of PAs and NPs as instructors and theorizing both knowledge and comfort with these procedures will likely improve. Other skills scoring with a very low percentage of knowledge were diagnostic peritoneal lavage, pericardiocentesis, and venous cutdown. These are now all optional skills and used rarely in trauma resuscitation. Adjuncts with low levels of knowledge were FAST and e-FAST, and in our experience as course directors we see this in current ATLS courses in our physician population, largely due to unavailability of a bedside ultrasound at some practice locales. This appears to be improving with time and increased exposure through education and practice will improve knowledge and skill of all providers. Of note, 237 (14%) of respondents were from level 3 and non-trauma centers. Further analyses of this subgroup combined with additional survey information may provide further insights regarding the skills and needs of these individuals practicing in these locations.

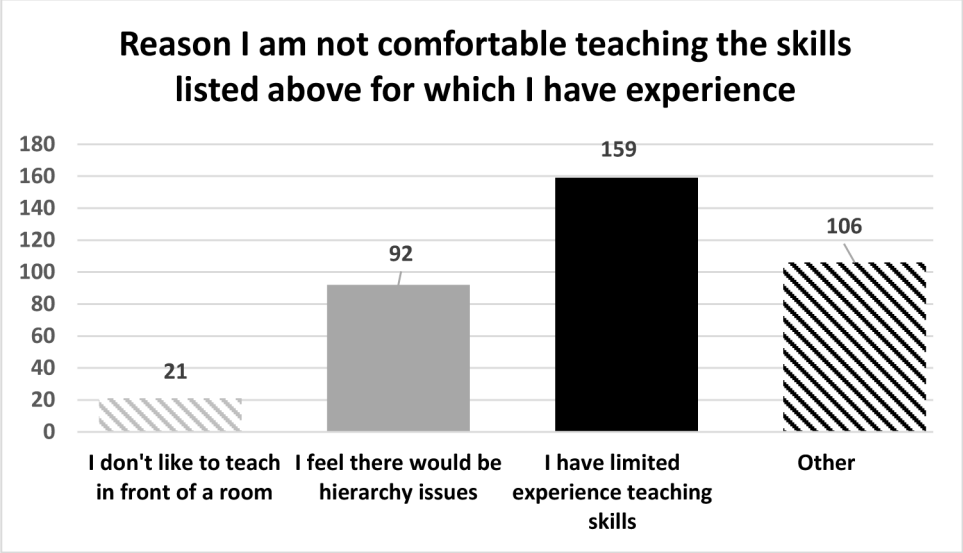

Figure 4 Reasons given for those not comfortable teaching skills.

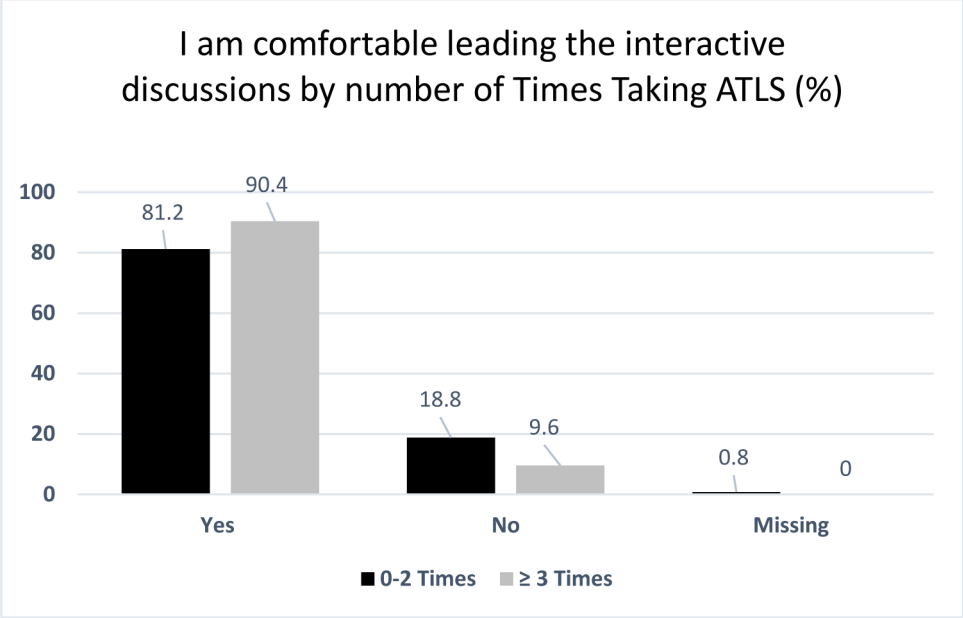

Figure 5 Percentage of those comfortable leading interactive discussions versus the frequency of Advanced Trauma Life Support (ATLS) course completion (p<0.0001).

Essential trauma education improves care and saves lives.[9–13] As demand for more courses increases there are escalating pleas for instructors. Natural and human-made disasters, and the disproportionate trauma death and disability experienced in rural and austere environments are additional drivers of this need.[14 15] Endorsing PA and NP providers as instructors, often the backbone of critical access trauma care, is a viable option for promulgating this well-recognized trauma course. Likewise, many trauma services rely on PAs and NPs to assist with daily care of a burgeoning number of patients and are called on to respond to critically injured traumas and multiple casualty incidents on a regular basis. In our collective experience, PAs and NPs provide professional, safe, efficient, and effective patient care and are valued members of trauma teams.

We recommend that PAs and NPs be allowed to participate in the ATLS Instructor course. As with all student provider courses this should occur under the guidance of course directors. Although knowledge and comfort levels of teaching interactive discussions were high, the perceived barriers to teaching ATLS are real, primarily teaching experience followed by hierarchy concerns. To proceed, a thoughtful approach must be taken. This involves maintaining a consistent method for training and maintaining certification of *all* ATLS instructors. Regular evaluations and a means to recertify the existing pool of instructors are needed to ensure course quality. With regard to PAs and NPs, we recommend that those with greater than 5 years of trauma experience who have passed ATLS within the existing requirements be allowed to become instructors. As is currently required by physician instructors, PAs and NPs must teach under the guidance of experienced course directors to be fully vetted as instructors. Finally, as with all ATLS courses, the use of PAs and NPs or any qualified instructor in provider courses remains at the discretion of the course director.

Limitations

This study has several limitations. It is a descriptive, survey-based study that asks respondents to evaluate their own performance and level of comfort teaching. This may have engendered an overestimation of actual skill level (the Dunning-Kruger effect). However, the data support that NPs and PAs with less experience (based on years in practice) rated themselves as being less

Table 5 Comfort teaching more advanced topics

	Times taking ATLS (%)		Years of trauma experience (%)		
More difficult topics	0–2 times	≥3 times	0–1 year	2–5 years	>5 years
Pediatric airway	586 (45.6)	253 (64.7)	152 (39.3)	246 (45.8)	441 (58.6)
Needle decompression	981 (77.3)	351 (89.3)	265 (69)	417 (78.8)	650 (86.8)
Needle cricothyrotomy	587 (45.7)	258 (65.5)	154 (39.8)	249 (46.3)	442 (58.5)
Surgical cricothyrotomy	524 (41.2)	236 (60.2)	138 (36.1)	226 (42.4)	396 (52.8)
Finger and tube thoracotomy	771 (59.9)	323 (82.6)	196 (50.7)	341 (63.5)	557 (73.9)
Venous cutdown	221 (17.2)	131 (33.8)	51 (13.3)	87 (16.3)	214 (28.3)
Femoral venipuncture	729 (56.7)	281 (71.1)	173 (44.9)	310 (57.5)	527 (69.7)
Subclavian venipuncture	583 (45.3)	238 (60.1)	127 (32.8)	254 (47.1)	440 (58.1)
Diagnostic peritoneal lavage	233 (18.1)	134 (33.9)	41 (10.6%)	91 (16.9)	235 (31.0)

Very few were comfortable with diagnostic peritoneal lavage or venous cutdown. All p<0.0001.
ATLS, Advanced Trauma Life Support.

comfortable with didactic and skill teaching relative to those with more experience. Similarly, a lack of comfort with 'rare' skills, such as Diagnostic peritoneal lavage (DPL) and venous cutdown, was reported by most respondents. This suggests at least some level of valid self-insight. Another limitation is that the study questions were piloted with only a small group of NPs and PAs, limiting its statistical validity. The completed surveys comprise a convenience sample/self-selected group but do not minimize the potential for this group being vetted as ATLS instructors under a carefully constructed training paradigm. Also not surveyed were the potential differences in training curricula between NPs and PAs or within each of these groups.

CONCLUSIONS

There remain many trauma information and skill deserts. Education is the foundation to ameliorate these gaps. Given the rapid increase in highly skilled NP/PA providers and the role they play in trauma patient stabilization and care in a multitude of environments, the time has come to endorse them as partners in this valuable educational program. Despite its limitations, this study suggests that further investigation and efforts should be devoted to determining the best possible integration of NPs and PAs into the ATLS faculty process. Pilot testing is underway to assess knowledge and technical skills and minimum requirements for becoming an instructor have been established based on results of this survey. Removing barriers to ATLS training will boost global trauma knowledge and improve outcomes for trauma patients.

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