The Deployed Advanced Care Provider

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"You filthy surgeons better wash your hands before you touch my patients."

Margaret Maxiner, NP

BLUF Box (Bottom Line Up Front)

1. Advanced care providers (ACPs) compose a large portion of the military medical manpower, including clinical and field medical leadership personnel.
2. The deployed NP/PA is a valuable asset, often with significant advanced trauma, critical care, and operational medical training and experience.
3. Military NP/PAs often have significant field unit experience, including command and staff backgrounds, knowledge of medical logistics, and military medical regulations.
4. Identify any ACPs on your deployed base or area and their resources, as they will often become one of your critical resources.
5. The ACP is a combat medical force multiplier and will bring new depth to your team.
6. Integrate any available ACPs into your unit's MASCAL plan. They will be invaluable to increasing your capabilities when you have a large number of casualties coming in.
7. You will almost never leave your base, but the ACPs will frequently have outreach missions with the local population. They can provide valuable situational awareness and information.
8. Treat them as a provider, not as an "assistant" or "nurse." You will often find them to be more skilled and adept than many of your deployed physicians, particularly for trauma care.
9. Civilian ACPs often are relegated to practice below the level of their degree and training. Deployed ACPs will usually practice at or above that level.

Scenario 1

At 0300 our Forward Surgical Team (FST) received a warning of ten incoming "urgent surgical" patients from a suicide bomb attack on a US convoy. Our unit sprang into action and set up our six-bed receiving area, including assigning responsibilities. We had only three physicians, and so each took two of the beds, knowing

we would have to hop back and forth. If one or more of us had to go immediately to the OR, then the remaining docs would have to cover even more. But then, the nurse practitioner and her team from the base Navy Provincial Reconstruction Team arrived and covered the last two beds and any "walking wounded." The MASCAL ran incredibly smoothly, and when we got out of the OR, the remaining patients were already evaluated and ready for disposition.

Scenario 2

A 15-patient MASCAL event occurred just outside of the base where our split FST was located. Fortunately, our small unit was colocated with a Role 1 aid station commanded by an incredible physician assistant. All of the incoming patients were evaluated initially by her team, including a search for weapons or explosives, and then triaged to either our FST beds or to the aid station beds. Ten of the 15 less severely injured patients never even came into our FST, and the dreaded "over-triage" that can degrade any MASCAL response was avoided.

Introduction

The role, numbers, and use of ACPs vary widely across the country from state to state and even more so within various medical systems and practices. Thus, physicians and surgeons may spend their entire training or portions of their career with little to no interaction with nurse practitioners (NP) or physician assistants (PA). Many providers are likely unaware of the military's unique and important part in the development, education, and use of ACPs. Moreover, many young surgeons without significant military experience prior to residency may not have an appreciation for the capabilities, backgrounds, and potential of ACPs in the world of operational medicine.

Physicians in North Carolina and Washington State identified a shortage of doctors following the Vietnam War, particularly in primary care. Former military corpsmen and medics were recruited into the first physician assistant training programs after recognizing the potential role of medical providers with significant experience, practical education, and hands-on training, without the formal background and time commitment required of medical school and residency training. The success of these programs and the ACPs they produced gave rise to training programs across the nation and within all branches of the military. Today, ACPs play a crucial role in the military medical system worldwide, across the spectrum of education and training programs, routine clinical and specialty care, and operational medicine.

ACPs, particularly physician assistants, compose a large part of the military medical manpower. The majority of military advanced practitioners have a background in general or primary care, but subspecialists in surgery, critical care, and emergency medicine exist. Many PAs have former backgrounds and careers in an enlisted field as corpsmen, medics, or other health-care specialty personnel and often with extensive operational and deployment experience. ACPs are routinely assigned to battalion-level units as primary care providers and may command units

such as Forward Surgical Teams, Ambulance and Treatment Platoons, and Forward Support Medical Companies. Since these providers often serve a number of rotations in field units, they are well versed in the day-to-day management of military units and command and staff duties.

In the deployed setting, ACPs are heavily utilized in the Role I echelon of care with field units. ACPs can be found staffing sick call, aid stations, and forward medical treatment sites, on the ground with combat arms units, or assisting in Role 2 and Role 3 facilities. The background, experience, and training of these providers can be of substantial help to the deployed surgeon, particularly if you have little operational experience. Most importantly, these providers and their teams can be key assets to augment your Role 2 (or even Role 3) facility's ability to provide care for multiple simultaneous patients, or for any MASCAL incident. You should always identify any of these available assets that are colocated at your base of operations and integrate them into your team's activities and training as much as possible. They should *always* be included in your MASCAL plan and any MASCAL rehearsal drills. Beyond clinical duties, ACPs can be of significant assistance with the development and exercising of medical readiness training, executing mass casualty drills and events, preparing for CBRNE contingencies, understanding the frustrating system of medical logistics, assisting in patient evacuation and movement, and understanding the complexities of combat operations.

For the first-time deployed surgeon, the NP/PA can be a resource for the mundane details of deployed life, as follows: How do I adjust my body armor? What do I need to take with me on a convoy or flight? How can I order more of something? What should I do with this weapon they gave me? When the battalion commander asks me about something, what should I say? This is not to suggest that physicians and surgeons are inept in daily deployed life, but most spend the majority of their early career in the bubble of medical center life. The NP/PA is an important ally and colleague to the deployed physician and surgeon; develop this relationship early as it can make your deployment experiences far more successful and rewarding.

A unique subset of PAs within the military has extensive backgrounds in combat arms fields, serving as prior medics or nonmedical roles in the special operations community or other combat arms branches. These individuals often represent a fountain of knowledge and experience for medical operations planning owing to their mix of tactical and operational experience and medical background. Frequently, these individuals can help "translate" between the clinical providers and the nonmedical military leadership. When faced with difficulty communicating with chains of command or nonmedical leadership, these ACPs can be of great assistance. Regardless of the background of the advanced practitioner, the deployed surgeon is well advised to seek out and partner with these professionals to ensure a successful mission.

Physician Assistants in the US Military

The attack started at approximately 2300 h as the infantryman and MPs rotated guard shifts on our small FOB. About 30 soldiers had just finished an outdoor movie and were beginning to head back to their tents for the night when the rounds began to impact. The first few mortars that impacted were white phosphorous and

fortunately impacted just outside the perimeter. However, because of the dark and sudden flash, several of those on guard duty had to be led to the Battalion Aid Station (BAS) as they were temporarily blinded. The enemy switched to high explosive (HE) at this point. Three of the GP large sleeping tents were impacted, and by sheer providence, these were the tents that housed the platoons that were on patrol that night. The rounds that impacted near those leaving the movie were another story. Multiple patients wandered/walked in the dark to the BAS, and a few were brought in by their buddies. Despite multiple extremity wounds and ongoing hemorrhage, most were ambulatory. We had practiced our mass casualty (MASCAL) plan and implemented pulling all of the casualties into the hardened old bombed out Iraqi building that housed our supply section. Tourniquets were applied, and rapid assessment showed that we had 13 casualties. Four had night blindness but intact visual acuity with ambient light, two had chest and abdominal penetrating wounds but were stable without peritoneal signs or shortness of breath, and the rest had varying degrees of penetrating extremity trauma. One soldier in particular was walking when the mortar impacted right next to a light post he was passing. Every exposed extremity had wounds in it, but his trunk was fortunately spared by the pole. He literally ran out of his shoes getting to the aid station. After the casualties were stabilized and other interventions secured, we converted applied tourniquets to pressure dressings. A 9-line MEDEVAC request was sent, but due to the enemy activity in our area, our request was denied. Because we were 15 km by ground from the nearest Role 3, we discussed the current threat situation with the battalion commander and QRF leader. We decided together to evacuate those that had the truncal injuries and eyesight changes immediately, and the others would be evacuated in the morning when the units on patrol would return and additional assets would be available. Antibiotics and pain management were given to those that remained at the BAS.

Military physician assistants are licensed providers that function with a high degree of autonomy, often located in remote and austere locations with the units that they are attached to.

History

The physician assistant (PA) career and training program began with Dr. Eugene Stead at Duke University with four former Navy Corpsman in 1965. The Army, Navy, and Air Force all followed shortly thereafter in 1971 initiating their own programs, and the Coast Guard sent their candidates to the Duke program. The schools were combined in 1996. The program was modeled after the shortened physician training during the World War 2. The role of the military physician assistant was implemented to augment and supplement the physician shortages across the military.

Training

The majority of physician assistant programs require an undergraduate degree and a substantial number of clinical hours and consist of 24–30 months of training that is divided nearly equally by didactic education and clinical rotations. After training,

PAs must pass the Physician Assistant National Certification Exam (PANCE) and are required to pass the Physician Assistant National Recertification Exam (PANRE) every 10 years, along with ongoing continuing medical education.

Physician assistants that matriculate through the Interservice Physician Assistant Program (IPAP) have on average approximately 10 years of prior service. Because of this experience, they are a valuable asset and play a key role in the planning of medical operations and evacuation. Commanders at every level should actively engage their PAs in this planning. Each military branch offers a variety of additional skill sets for PAs including flight medicine, orthopedics, emergency medicine, general surgery, dive medicine, and others. Although most PA programs cover trauma management during the emergency medicine lectures, the IPAP program includes advanced trauma management (ATM), which is an abbreviated ATLS course that includes a live tissue lab; this is only a brief exposure to the skills that will potentially be needed during a deployment. Topics and skills covered include airway management, chest tubes, cutting down, and central line placement.

Each provider and preferably their assigned senior medic/corpsman deployed to Role 1 or 2 facilities should attend the Tactical Combat Medical Course located at Ft. Sam Houston prior to deployment. This exceptional course focuses on hands-on training and the utilization of the supplies that are in the military inventory. Additionally, data that is returned from deployed graduates is implemented into the course so that the information dispersed reflects the current practices in theater. This course also goes into detail on how to develop and conduct a "walking blood bank." The course is 10 days and is prioritized to those that are deployed to Role 1–2 facilities. During this course, review of the current blood component management practice guidelines and the development and initiation of a "walking blood bank" are covered.

Recently the American College of Surgeons Committee on Trauma removed the limitation on the number of "nonphysician" attendees during an ATLS course. This significant change now allows entire courses of PA/NPs to be conducted. Deploying PAs should also attend an ATLS course in order to refresh management of casualties and procedures. Those PAs that are anticipated will be stationed in a remote area, solo, or those that will be assigned to a Role 2 should strongly consider attending a Fundamentals of Critical Care Support (FCCS) course. The information in this course is vital to those that will be initiating and managing ventilators, sedation, and pressors for casualties. Additionally, courses in the use of ultrasound and extended focused assessment with sonography in trauma (E/FAST) exam should be sought out as this can provide a significant clinical tool.

Roles

Physician assistants are currently utilized in a multitude of roles including Battalion Aid Stations, forward and main support medical companies, Medical Battalions, special operations, aviation, and naval Shock Trauma Platoons to plan and command positions (Fig. 47.1). Battalion Aid Stations are often colocated with Forward

Fig. 47.1 Physician assistant (author JV) treating a local Iraqi national, 2003, Senior Medic in foreground (Photo courtesy of Jon Van Horn)

Fig. 47.2 Physician assistant (author JV) and Senior Medic suturing a wounded infantryman (Photo courtesy of Jon Van Horn)

Surgical Teams (USA), EMEDS (USAF), and Naval Forward Resuscitative Surgical System (FRSS) or coalition partners that provide surgical care. The PAs often assist these partners during mass casualty incidents to provide initial evaluation and triage, management of patients that do not require immediate surgical intervention by the local Role 2 element, and to augment the initial care capacity of the local Role 2 or 3 facility during MASCAL events (Fig. 47.2).

Depending on the unit and location, PAs provide the daily primary care of the unit personnel, and depending on staffing, by an assigned MD/DO as well. Care includes all aspects of preventive medicine, immunizations, patient tracking after evacuation, orthopedic evaluation and treatment, and minor procedures. The PA plays a key role in the training of medical and unit personnel in Tactical Combat Casualty Care. Trauma care must be reviewed and rehearsed with team members continuously to ensure expeditious management in preparation of

multiple casualties. Efforts should be taken to post resuscitation algorithms in the resuscitation area for quick reference, as well as ready access to all necessary supplies.

Nurse Practitioners in the US Military

The Nokia cell phone pealed out its telltale ringtone, and my heart rate immediately quickened. I answered. It was the Forward Surgical Team calling to request support from the PRT medical team for a MASCAL. They were preparing to receive five Afghan National Army (ANA) soldiers who were in a Humvee when it hit an IED, rolled over, and then came under small arms fire. They were expecting a variety of injuries including gunshot wounds, chest and abdominal trauma, and multiple fractures. I quickly grabbed my stethoscope and trauma shears and rushed through the PRT building to notify my corpsmen and Army medic that we were needed in the FST. My mind was going through the ATLS ABCDEs and the roles of my team when I heard the sounds of the ANA ambulance's wheels tearing across the FOB's gravel roads. We rushed to the doors of the FST, nervous but prepared to let our training kick in.

Nurse practitioners (NPs) have played a vital role in deployed settings around the globe. Our education, training, and skill in practicing both autonomously and collaboratively translates into the ability to support a wide variety of military and humanitarian missions worldwide. With additional training in trauma care and preparation for work in combat environments, NPs are a vital resource in our military force.

What Is a Nurse Practitioner and What Does the Training Include?

The American Academy of Nurse Practitioners (AANP) succinctly describes the education and training of nurse practitioners (NPs): NPs have completed a master's or doctoral degree program, and have advanced clinical training beyond the initial registered nurse degree. The classroom-based coursework and clinical training during the NP program prepares for practice in primary care, acute care and long-term health-care settings. NPs provide a full range of health-care services, including ordering, performing, and interpreting diagnostic tests such as lab work and x-rays; diagnosing and treating acute and chronic conditions such as diabetes, high blood pressure, infections, and injuries; prescribing medications and other treatments; managing patients' overall care; and counseling and educating patients on disease prevention and positive health and lifestyle choices. When pursuing a master's or doctoral level program, nurse practitioner students select from a variety of specialty areas including acute care, adult health, family health, gerontology health, neonatal health, oncology, pediatric/child health, psychiatric/mental health, and women's health.

Military Nurse Corps officers can complete nurse practitioner programs part time on their own (utilizing tuition assistance or GI Bill funds); or, alternatively, once they have served two years, become worldwide assignable, meet all physical requirements, and are promotable, a Nurse Corps officer can apply for duty under

instruction (DUINS) to attend a full-time master's or doctoral program at the Uniformed Services University of the Health Sciences (USUHS) or at a civilian college or university.

How Does a Nurse Practitioner Prepare for Deployment?

Once a military nurse practitioner has graduated, he or she will be assigned to a job position/billet and will prepare for, then take, a certification exam through the American Academy of Nurse Practitioners Certification Board or the American Nurses Credentialing Center. The first job position, commonly known as the "utilization tour," is essential in gaining experience and confidence. It is also crucial to connect with more experienced NPs, physician assistants, and physicians in the workplace to find clinical and professional mentors.

Military NPs are generally protected from deploying for the first six months. During this first job position, the NP is honing diagnostic and treatment skills in the specific clinic area. Concurrently, it is also important to continue training and preparation for a potential future deployment. This includes maintaining active Basic Life Support (BLS), Advanced Cardiovascular Life Support (ACLS), and Pediatric Advanced Life Support (PALS) certifications. Additionally, it is important to seek out opportunities for trauma training including the Trauma Nursing Core Course (TNCC), Tactical Combat Casualty Care (TCCC), and Advanced Trauma Life Support (ATLS). Also, the Navy Trauma Training Center (NTTC) provides a rare opportunity to work side by side with some of the strongest trauma teams in the nation at Los Angeles County and University of Southern California (LAC + USC) Medical Center.

Finally, the Tactical Combat Medical Care (TCMC) course in San Antonio, TX, is a fantastic just-in-time course for life-saving trauma care skills vital for deployments to combat zones. Some of the most helpful resources to take on deployment to a combat zone are the handbooks and manuals from the courses above, as well as internet access to UpToDate, the Centers for Disease Control and Prevention, and the World Health Organization websites.

My Experience as a Nurse Practitioner in a Combat Zone

On my second deployment, I was the Senior Medical Officer for a Provincial Reconstruction Team (PRT) in Ghazni, Afghanistan. The responsibilities for this position included taking care of the medical needs for our 88-person PRT, supervising and training a team of three corpsmen and one medic, running a sick call clinic for the Forward Operating Base in a PRT-staffed and supplied Battle Aid Station (BAS), providing medical planning and support for convoy missions off of the Forward Operating Base (FOB), supervising a PRT-run Local National Clinic, augmenting the Forward Surgical Team during mass casualties and Walking Blood Banks, participating in meetings and facility assessments with the Afghan Ministry of Public Health (MoPH) representatives from the provincial and district clinics and hospitals, and providing combat lifesaver and Individual First-Aid Kit (IFAK) training to US Military personnel, civilian contractors, and Afghan National Army (ANA) and Afghan National Police (ANP) members.

Our base had about 2000 people, and the PRT BAS was open for walk-in visits Monday through Saturday, 0800–1100. The patients were typically seen for minor acute illnesses (colds and respiratory infections, gastrointestinal illnesses with mild dehydration, dermatologic issues, musculoskeletal injuries) as well as chronic medical conditions exacerbated in deployed settings (allergies, hypertension, musculoskeletal pains). Additionally, we provided vital, compassionate mental health care. We would frequently treat patients for insomnia, anxiety, acute stress reaction, and symptoms of depression. In addition, we performed traumatic brain injury (TBI) screening for people affected by IED blasts or indirect fire when they did not sustain injuries significant enough to require treatment at the Forward Surgical Team. Our FOB did have access to a combat stress team who came to the base once a month and was available by phone for consultation. Later, the base received a chaplain and chaplain's assistant, and we had a wonderful collaborative relationship with them.

The "big picture" of the work of a PRT is to be a civilian and a military team functioning shoulder-to-shoulder with Afghan government agencies to develop the capacity to sustainably lead. This was done in collaboration with the US Agency for International Development (USAID), the Department of State, the US Army Agribusiness Development Team (ADT), and the US Army Corps of Engineers. This work required frequent ground and air convoys into the villages throughout the province (Fig. 47.3). The PRT medical team provided support for

Fig. 47.3 Nurse practitioner (author ZY) on an outreach mission to a local village outside of Forward Operating Base Ghazni, Afghanistan (Photo courtesy of Zaradhe Yach)

all PRT missions and some of the ADT and coalition convoys off the FOB. Medical evacuation (MEDEVAC) was a portion of every mission plan and brief, and every military member on a convoy had gone through combat lifesaver training. The PRT medical team provided immediate trauma treatment and MEDEVAC care on multiple missions when our convoys faced improvised explosive devices (IEDs), rocket-propelled grenades (RPGs), mortar fire, small arms fire, a vehicle rollover, and more.

PRT Ghazni also supervised, supplied, and funded a Local National Clinic on our base and employed an Afghan physician, a midwife, and a midwife apprentice on Saturdays and Wednesdays from 0800 to 1200. The Afghan providers would typically see approximately 80–100 patients per day from the local villages for gastrointestinal illnesses, upper respiratory infections, skin diseases and burns, hypertension, prenatal care, musculoskeletal conditions, mental health disorders, dehydration and malnutrition, and much more. This was a very rewarding experience for the PRT medical staff and other members of the PRT, as it gave us insight into the lives of local Afghans who wanted peace and safety for themselves and their families and held out hope for a prosperous future for Afghanistan. It also gave us an opportunity to partner with our Civil Affairs, Public Affairs, friends, families, and charity organizations in the USA and around the world to collect hygiene supplies, shoes, jackets and other cold weather garments, toys, and art and school supplies to distribute to the Local National Clinic and to local Afghans on our convoy missions into the villages.

Another important role of the PRT medical team was to augment the Forward Surgical Team (FST) during mass casualty events (Fig. 47.4). Our FST was a four + bed unit with two operating rooms. They were staffed with a trauma surgeon, a general surgeon, an orthopedic surgeon, anesthesia providers, critical care-trained nurses, and medics. They were simply outstanding and worked hand-in-hand with a top-notch casualty evacuation (CASEVAC) unit. When the FST received more than two to three critical patients, they would call on the PRT medical staff to assist their staff. We would typically run the fourth bed, which would be the lowest acuity trauma patient, but during MASCALs, we were often called upon to manage multiple patients. This was particularly critical when the FST surgeons would have to emergently take a patient to the operating room and rely on our team to assume increased responsibilities in the triage and immediate care areas. Our PRT staff was also instrumental in coordinating and manning the stations for a Walking Blood Bank (WBB), a real-time blood bank assembled quickly in situations where the transfusion needs exceed the blood supply available. In this situation, prescreened donors of the necessary blood type are called upon to donate whole blood for immediate transfusion to the trauma patient in the operating room.

Additionally, as the Senior Medical Officer for the PRT, I worked on health sector development with USAID and the provincial Ministry of Public Health. This included doing site assessments of clinics and hospitals, working with our engineers on building projects, and attending meetings with the district and provincial

Fig. 47.4 Nurse practitioner (author ZY) and team caring for injured during MASCAL event in Afghanistan (Photo courtesy of Zaradhe Yach)

leaders to discuss health issues in their communities. The Afghan physician, midwife, and the PRT staff also coordinated village medical outreach (VMOs formerly commonly known as MEDCAPs) missions and education programs for the communities utilizing Afghan medical providers to deliver direct patient care and provided vital translation services on missions.

Conclusion

Military advanced practitioner duties have expanded over the last 50 years, and they continue to be utilized in a multitude of roles, assignments, and units not only clinical but operational in planning and command as well. These professionals are vital to the ongoing training of medics, corpsman, and the continuous training of unit personnel and combat lifesavers in the tenets of Tactical Combat Casualty Care, which directly improves the survivability of the injured. The advanced practitioner is a valuable resource in the deployed setting, combining a rich background in medical knowledge and operational experience that can be leveraged to greatly enhance your team or unit ability to provide optimal trauma and emergency care on the battlefield.

Civilian Translation of Military Experience and Lessons Learned

Matthew J. Martin

Key Similarities

1. Advanced care providers (ACPs) are key components of most trauma and emergency care programs.
2. They are providing an increasing proportion of the day-to-day care due to the decreased availability of resident and staff physicians.
3. The exact role, training, scope of practice, and supervisory requirements for ACPs will vary widely by the setting, applicable local laws and policies, and the needs of the mission.
4. ACPs are licensed providers who can perform evaluations, interventions, prescribe medications, and a variety of other functions.
5. ACPs can greatly enhance any acute care programs.

Key Differences

1. In the civilian setting, ACPs are often being utilized as "resident substitutes," particularly following the work hours regulations. In the deployed setting, they are utilized in more leadership and independent roles.
2. ACPs will usually have easy access to assistance from other medical staff, physicians, technologists, etc. in the civilian setting. In the military setting, they often are the highest-level medical provider in that location.
3. ACPs in the deployed setting often have key nonmedical leadership roles, including serving as the commander of their medical unit.
4. In the civilian setting, ACPs are often utilized within or below the level of their degree and training. In the military deployed setting, they are often used at the upper end of their degrees and training.
5. ACPs in the military setting often also serve as the medical liaison and primary medical advisor to line units and line commanders.

During the initial planning and execution of this second edition of *Front Line Surgery*, we added a number of new chapters on a variety of topics that we felt would be relevant to the deployed provider, and particularly the deployed surgeon. It was not very late in this process that we realized we had made a huge oversight: we did not have a chapter on advanced care providers on the battlefield. Fortunately, the three authors of this chapter were able to put together an outstanding primer on the topic and to help the reader understand and appreciate the incredible asset and "force multiplier" that the ACP can represent in the deployed setting. As a deployed

provider, and particularly if you are at the Role 2 level, you will usually have significant interactions with ACPs who are colocated on your base or even colocated with your team to provide a combined Role 1/Role 2 facility. Get to know them, support them, and integrate them with your unit to take advantage of their knowledge, skills, and leadership abilities. A couple quick tips: a PA is a "physician assistant," and not a "physician's assistant," so don't treat them as your personal assistant or resident. An NP is not a "nurse" but is a licensed independent practitioner and should be treated as such. And neither is solely a "physician extender."

I have also had the privilege of working extensively with ACPs in multiple civilian settings, including at two busy Level 1 trauma centers where ACPs have been increasingly relied upon to provide coverage and care for a wide variety of patients including trauma, emergency surgery, and intensive care unit (ICU). I think this is a far cry from the initial gestalt of the physician assistant (PA) or the nurse practitioner (NP) as simply being an "extender" to physicians and to primarily operate in the primary care arena. In today's health-care environment, ACPs can be found in almost every aspect of inpatient and acute care – including the emergency department, wards, operating rooms, and ICUs. One of the most prominent factors in the major increase in ACPs working as trauma providers was the implementation of work hours limitations for residents in US training programs. All Level 1 and many Level 2 or lower trauma centers heavily relied on residents to provide continuous coverage of all aspects of the trauma service, and the work hours limitations drastically changed this paradigm, leaving significant holes in the call and service coverage schedules for these programs.

In response to this, most trauma centers integrated ACPs into their programs and practice models, typically by hiring a number of PAs and/or NPs. I credit the fact that there was little to no degradation in patient care or outcomes following the work hours restrictions to the hard work and dedication of these ACPs who stepped up to fill the void left by decreasing resident coverage and availability. In addition to filling these holes, ACPs have actually enhanced resident training by freeing them up from some other responsibilities, which allow them to participate more on operative cases and bedside clinical care. Figure 47.5 shows responses from a survey of US academic medical centers regarding the primary reason for employing ACPs, with the most common being due to resident work hours restrictions, but also for a variety of other reasons as shown.

From a staff trauma surgeon and Trauma Medical Director standpoint, I also believe that our perception and utilization of ACPs have rapidly evolved as we developed more experience and familiarity with exactly what a PA or NP is and what they are capable of doing. As they were frequently initially brought on to be "resident substitutes," they were often thought of and managed in a similar fashion to residents. This included a significant degree of supervision, limited independence, and hesitation to use them in new roles or responsibilities (such as ICU care). In addition, there also arose areas of conflict where the functions of the resident, the attending, and the ACP overlapped and were not clearly delineated. I would like to say that we have now solved all of these issues, but these are things we continue to struggle with on a daily basis. However, we are slowly evolving and improving our

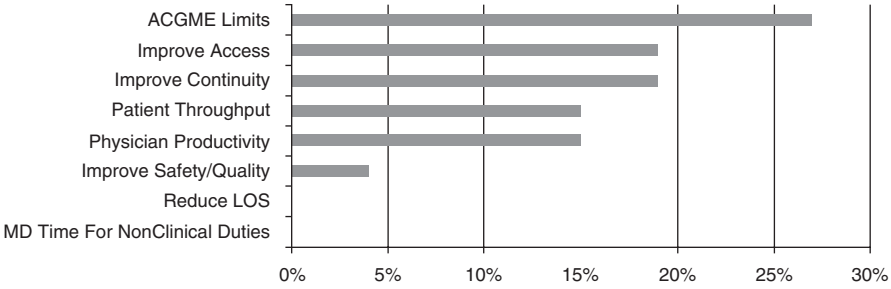

Fig. 47.5 Graph showing the reported primary reasons for employing ACPs at academic medical centers in the United States (Reproduced with permission from Moote M, Krsek C, Kleinpell R, et al. Physician assistant and nurse practitioner utilization in Academic Medical Centers. American Journal of Medical Quality 201; 26:452–460)

utilization of these incredibly valuable personnel and creating new paradigms where ACPs are extending to provide high-level ICU care, procedural and intraoperative assistance, and even administrative or clinical leadership roles.

In summary, ACPs are critical members of the modern health-care team and have been particularly important and relevant in trauma care in both the military and civilian settings. It is important that you understand exactly what a PA or NP is, what their training and abilities are, and how to best utilize them to provide the best care possible to our civilian patients or to our wounded service members or other combat casualties. The ACP model for trauma care is here to stay, and ACPs are going to continue to play an increasing role in these settings.

Suggested Reading

1. ATLS Course Availability: http://web2.facs.org/atls/ATLSSearch.cfm?Search=USA.
2. Basic Control of Hemorrhage for the Injured: http://www.naemt.org/education/B-Con/B-Con.aspx.
3. FCCS Course Availability: http://www.sccm.org/Fundamentals/FCCS/Pages/FCCS-Resources.aspx.
4. Interservice Physician Assistant Program: http://www.cs.amedd.army.mil/ipap/.
5. Joint Trauma System Clinical Practice Guidelines: http://www.usaisr.amedd.army.mil/cpgs.html.
6. Tactical Combat Medical Course: https://www.atrrs.army.mil/atrrscc/courseInfo.aspx?fy=2017&sch=081&crs=6H-F35%2f300-F38&crstitle=TACTICAL+COMBAT+MEDICAL+CARE+(TCMC)&phase=.