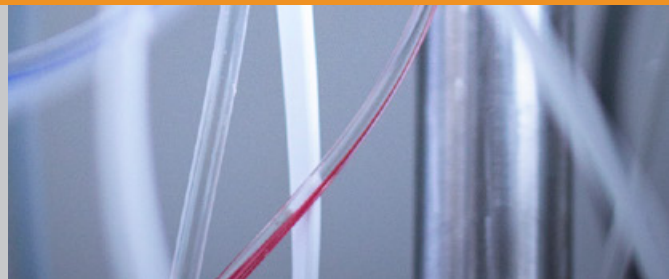


Emergency Medicine

A Toolkit for Practicing PAs

The scope of practice in the ED is not just emergency medicine, but almost the full scope of medicine, ranging from pediatrics to geriatrics, obstetrics to orthopedics, suturing to psychiatric evaluations, and everything in between.



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Emergency Medicine Toolkit

The document, *Emergency Medicine Medicine: A Toolkit for Students*, was put together by the SEMPA Membership Committee to introduce physician assistant students and new graduates to the field of emergency medicine, and to serve as a resource to answer many practice and career questions. Once completed, the committee realized that some portions of it could benefit all PAs practicing in emergency medicine regardless of their level of experience. This document, *Emergency Medicine: A Toolkit for Practicing PAs*, contains those sections of the student toolkit the committee believes you too will find useful in your practice.

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No matter what the circumstances or concern, it is our privilege in the ED to serve the community 24 hours a day, 7 days a week, 365 days a year.

Welcome

The practice of emergency medicine focuses on the immediate decision making and actions needed to prevent death and further disability in a diversified population of patients in response to acute illness or injury,¹ but working in the emergency department (ED) involves providing care for everyone who comes seeking medical or psychiatric care. Anyone, at any time, can present to an ED for treatment and this right is protected by U.S. laws. Therefore, the scope of practice in the ED is not just emergency medicine, but almost the full scope of medicine, ranging from pediatrics to geriatrics, obstetrics to orthopedics, suturing to psychiatric evaluations, and everything in between.

We who work in emergency medicine are there for any ill or injured patient who comes through our doors. Occasionally, we are there at life's first breath, but often we're there for its last. In the ED, there is no discrimination based on race, religion, class, or country.

A Brief History of Practicing PAs

The man credited with being the “father of emergency medicine” is Dominique Jean Larrey, a surgeon in Napoleon’s army during the French Revolution and a battlefield medicine innovator, who was the first to set up an emergency medical system. In the late 1700s, Larrey organized the “ambulance volante” or flying ambulances staffed with drivers, trained corpsmen, and litter carriers to assess and stabilize the French soldiers and bring them back to a battlefield hospital where he and other surgeons could care for the wounded.² This was the first known system dedicated to the emergency care of the wounded. No such system existed for the emergency care of civilians.

Through the 1800s, medical schools were primarily graduating general practitioners (GPs), and it was these doctors who provided most emergency medical care. They would diagnose and treat illness, perform surgeries, deliver babies, and take care of “emergencies,” mostly through house calls. During that time, for the public, there was no centralized or free medical care and there was a lack of specialization aside from general and surgical practices. The first ambulance service in the United States was created in Cincinnati in 1865 at Cincinnati General Hospital.²

It wasn’t until around 1910 that medical education became more standardized and began including a year of internship after medical school training. Around that time, a variety of new specialties emerged including ophthalmology, otolaryngology and general surgery. From the 1920s to the 1950s, more and more specialties were established. Prior to this time, more than 75% of medical practitioners classified themselves as GPs, but after 1955 this decreased to 50%. By mid-1960 only 31% classified themselves as GPs. This led the way to the centralization of medical practices, and hospitals became more popular and the new centers of patient care. In these new buildings, the modern emergency room was established.

Emergency Medicine Becomes a Specialty

In the early stages of what is now referred to as the emergency department (ED), emergency rooms or accident rooms, were literally just rooms mostly relegated to the basement of the hospital. They were staffed on a rotating basis by internists, general surgeons and other doctors in various stages of specialty training. Sometimes it was a lone nurse staffing the emergency room who would call the appropriate specialist depending on the patient’s complaint.

It became apparent to the medical community that with a growing number of visits to emergency rooms, there was a need for physicians with specific emergency medicine training and skills to staff and serve patient’s needs. Groups of physicians began to devote some part of their practices to doing just that, which eventually gave rise to the establishment of emergency medicine as a specialty. This started a



trend through the 1960s when more and more doctors began staffing the ED full time. Dr. James Mills, Jr., in Alexandria, Virginia, was a GP credited with helping make emergency medicine a specialty.³ A former Navy physician, he saw the advantages of a coordinated system of emergency care led by physicians dedicated to the ED modeled after practices utilized by the military. He and three of his colleagues left their general practice and formed a full-time emergency practice group in 1961. Dr. Eugene Nakfoor organized another such group in Pontiac, Michigan, that same year.⁴

Formal Emergency Medicine Training

The number of “Emergency Physicians” grew into the hundreds by the end of the 1960s, and in 1968 the American College of Emergency Physicians (ACEP) was established by John Wiegenstein, MD, and other founders. ACEP leaders struggled with how to train emergency physicians for the specialty to meet the public’s growing reliance on EDs for services and the public’s demand for quality care. An internist at the University of Cincinnati, Herbert Flessa, MD, was charged with finding a solution to “the problem of the ER,” which by that time was seeing more than 100,000 patients per year. He suggested and received approval for a two-year residency program, and in 1970 the first emergency medicine resident, Bruce Janick, MD, began his training. In 1971, a residency at the Los Angeles County/University of Southern California Medical Center was established and a third was established at the Medical College of Pennsylvania in 1972. By 1978, there were 30 residency programs. And, in 1979, the American Board of Medical Specialties approved the American Board of Emergency Medicine as a certifying organization, and EM became a board-certified specialty.⁵

Physician Assistants in Emergency Medicine

The physician assistant (PA) profession similarly was created to provide increased access to medical care where a shortage of physician providers existed, in primary care practice. Dr. Eugene A. Stead, Jr., of Duke University helped establish the first PA program in 1965. He called on four Navy Hospital Corpsmen, again seeking to take advantage of the military emergency care medical system. These skilled and highly trained medics, accustomed to working in the emergency medicine arena, became the first PAs in the United States. The new profession received the support of the medical community and led to establishment of the American Academy of Physician Assistants (AAPA) in 1968, which was made up of the members of the Duke University program graduates.⁶ The National Commission on Certification of Physician Assistants (NCCPA) was established in Atlanta, Georgia, in 1974, and by 1980 there were 42 accredited PA programs and 9,431 certified PAs.⁶

PAs have practiced in the field of emergency medicine since the profession began and they practice in all areas of the specialty, including prehospital patient care, triage, fast track areas and the main ED. According to the 2015 Statistical Profile of Certified Physician Assistants, 14% of PAs practice in emergency medicine.⁷ The Society of Emergency Medicine Physician Assistants (SEMPA) was established in 1990 by a group of former postgraduate residency trained EMPAs. At its founding, SEMPA’s mission was to advance, protect, and promote the role of emergency medicine PAs. Throughout the 1990s, SEMPA gained recognition as the representative body for the nation’s EMPAs. SEMPA leaders were invited as ad hoc members of various committees and workgroups for ACEP, and AAPA recognized SEMPA as a specialty constituent organization. SEMPA continues to serve as the definitive source for EMPA practice guidelines, education, advocacy and support.⁸ From the earliest roots of the profession, it is easy to see why PAs are an asset to EDs across the United States.

For more information visit:
sempa.org/Resources/PAs-in-the-ED
sempa.org/About-SEMPA/History



Regulatory and Legal Issues in Emergency Medicine

With the emergence of the hospitals and emergency departments as the centers of emergency care, legislation was enacted to ensure the fair treatment and adequate care of U.S. citizens. There are a few sentinel cases, legal principles, regulatory bodies, and important laws to be familiar with as you enter the arena of emergency medicine.

Consent and Informed Consent

In 1914, Mary Schloendorff presented to a New York hospital with abdominal symptoms. She consented to an examination but did not consent to surgery. During the examination under ether (a powerful sedative used at that time), a uterine fibroid was found and was surgically removed. Schloendorff went on to experience serious complications, including a severe abdominal infection and gangrene of the fingers that led to several amputations and chronic pain. She sued the Society of New York Hospital and the surgeon because she did not consent to surgery. The case was presided over by Justice Benjamin Cardozo and he upheld her suit stating, “Every human being of adult years and sound mind has a right to determine what shall be done with his own body, and a surgeon who performs an operation without his patient’s consent commits assault for which he is liable in damages. This is true except in cases of emergency where the patient is unconscious and where it is necessary to operate before consent can be obtained.”

This has become known as the Cardozo doctrine and is of utmost importance in the care of patients in the emergency department. Subsequently, the concept of consent has evolved to include both the patient’s right to determine what happens to his or her own body as well as the clinician’s obligation to provide enough information for the patient to make an educated decision regarding his or her condition and the proposed treatment, i.e., “informed” consent.

Informed Consent is defined as a duty imposed on a doctor to explain the risks of recommended procedures to a patient before a patient determines whether or not he or she should go forward with the procedure.

The Medical Screening Examination and EMTALA

On October 14, 1976, T. Hagood Gooding came to the ED for abdominal pain after he had fainted at home. His wife called his gastroenterologist and Gooding came to the ED, presumably to meet his doctor there. The ED staff didn’t examine him. Mr. Gooding complained of increasing pain and then went into cardiac arrest and died of a ruptured abdominal aortic aneurysm. The case was brought to court and the jury ruled that the emergency department failed to perform a proper screening examination and, thus, was liable for Gooding’s death. This ruling was later overturned in appeals because it was thought that the patient’s chances of survival would not have improved had an examination been performed. However, this highlights the duty of clinicians in the ED to assess everyone who presents for care.⁹



The Emergency Medical Treatment and Labor Act (EMTALA) is a federal law requiring that anyone coming to an emergency department be treated and stabilized, regardless of insurance status or ability to pay. Originally EMTALA was the “anti-dumping” law. It kept hospitals from refusing care or transferring uninsured or underinsured patients to other hospitals. EMTALA requires all Medicare-participating hospitals with EDs to screen and treat the emergency medical conditions of patients without discrimination regarding their ability to pay, insurance status, national origin, race, creed or color. Examination and treatment cannot be delayed to inquire about methods of payment or insurance coverage.¹⁰ EDs also must post signs that notify patients and visitors of their rights to a medical screening examination and treatment. There are financial penalties for hospitals and EDs that violate the EMTALA statutes.

A *medical screening examination* is defined as an examination, using the resources normally available to the hospital’s ED, that is adequate to discover an emergency medical condition.

An *Emergency Medicine condition* is any condition, that without immediate medical attention, might result in the loss of life, serious impairment, severe pain, or in the case of a woman in active labor, the death or disability of an unborn child.

Physician assistants can provide medical screening examinations as long as this is defined in their hospital’s written policies.¹¹ EMTALA allows each hospital to define who can perform a medical screening exam.



In 1998, an unfortunate event further defined and broadened EMTALA. The friends of a young man who had been shot, brought and left him just outside a hospital. Due to the hospital’s regulations that prohibited ED personnel from leaving the hospital, tragically, this young man died in an alley just adjacent to the ED without receiving aid from hospital staff. In 2003, EMTALA laws were amended to include a broader definition of an ED campus and expanding the responsibility of the ED staff in terms of what constitutes “presenting” to an ED in order to avoid such an event occurring again. This is now referred to as “the 250-yard rule” and states:

[A] campus means the physical area immediately adjacent to the provider’s main buildings, other areas and structures that are not strictly contiguous to the main buildings but are located within 250 yards of the main buildings, and any other areas determined on an individual case basis, by the HCFA regional office, to be part of the provider’s campus.¹²

To summarize, if a patient presents to the ED, the patient must receive a screening examination and if an emergency medical condition exists, treatment must be provided until the emergency medical condition is resolved or stabilized. If the hospital does not have the capability to treat the emergency medical condition, an “appropriate” transfer of the patient to another hospital must be made in accordance with the EMTALA provisions. Hospitals with specialized capabilities are obligated to accept transfers from hospitals that lack the capability to treat unstable emergency medical conditions. Once a patient is stabilized, EMTALA no longer applies.

The Joint Commission

In 1917, the American College of Surgeons (ACS) published *Minimum Standards for Hospitals* that was intended to establish basic national standards for every U.S. hospital. In 1951, the Joint Commission on Accreditation of Hospitals (JCAHO) was formed as a nonprofit, nongovernmental institution that, using the hospital standardization program developed by ACS, was charged with ensuring that hospitals in the U.S. met minimum standards for safety and efficacy. Congress then validated JCAHO by attaching a hospital’s eligibility to participate in Medicare to compliance with JCAHO standards. Hospitals must pass an onsite survey every three years and adhere to minimum acceptable standards to remain accredited with JCAHO and participate in Medicare. In 2007, JCAHO changed its name to The Joint Commission. There are many Joint Commission standards that affect the ED, including detailed documentation, appropriate use and monitoring of patient restraints, infection control and prevention, medication orders, the use of laboratory tests, patient identification and many more. It is important to be aware of these standards as they are aimed at promoting patient safety and appropriate medical care.¹³

https://www.jointcommission.org/standards_information/standards.aspx

HIPAA

Congress enacted the Health Insurance Portability and Accountability Act (HIPAA) in 1996 in order to protect individuals from unauthorized use of their personal health information (PHI). Patient confidentiality has long been a core value of the medical community, dating back to Hippocrates’ time. With the age of information came greater possibilities for abuse and inappropriate use of a patient’s PHI, which is defined as all information regarding a person’s medical/psychiatric status, treatment and payment. It is linked to a patient by identifiers such as the person’s name, contact information, residence, social security number, medical record number or any other unique identifiers. A patient’s PHI may be used by or shared with any health care provider in the ED such as a physician, PA or nurse, provided that the provider is involved in direct care of the patient. However, a patient’s PHI may be disclosed to others only with the individual’s consent unless otherwise stipulated by the law. Remembering the mandate of HIPAA to protect personal health information is important in a busy and crowded ED. Use common sense and follow hospital guidelines to adhere to HIPAA standards.





Career Planning Guide

Choosing a Practice Setting

There are multiple variables to consider when deciding on the position you want to pursue for your future employment. There are, of course, the decisions about geographic location, rural versus urban practices, low/medium/high volume settings and academic versus community practice settings; but an important consideration that you should be aware of are the practice employment types.

The following are the three main practice employment types, understanding that there is overlap between different practice models:

Hospital Employee

In this setting, the ED physician assistant staff are employed by the hospital administrator. The PA staff employee may negotiate their individual contract.

Pros: Benefits are automatically provided, retirement matching is common and the positions typically offer better job security. Teaching opportunities are commonly available.

Cons: Salaries are typically more limited than other arrangements, and the practice environment can fluctuate. State, local and hospital political considerations can impact your practice.

Private Group Practice

Private group practices are typically founded by a group of physicians who operate utilizing the democratic principles of group decision-making. These groups directly employ EMPAs. Most private group practices staff a small number of emergency departments, and some operate freestanding emergency departments, in a local or regional area.

Pros: Potential for more direct input on management practice decisions, typically higher compensation and potential for profit sharing.

Cons: Contracts with hospitals can be lost. Group revenue and expenses determine profitability and, ultimately, income.

Contract Management Group

Contract Management Groups (CMGs) are corporate groups that are typically owned by a group of individuals and investors, some of which may be non-physicians that hold contracts with hospitals to staff the emergency department. There are regional and national CMGs, with the larger groups staffing hundreds of emergency departments. The management group is responsible for administering the finances for their employees. These groups include companies such as CEP America, U.S. Acute Care Solutions and EmCare.

Pros: Administrative resources (human resources, compliance, risk management, recruiting, scheduling, billing and collecting), staffing back up, some offer clinical and leadership/management education are available. Mobility within the organization management and practice location.

Cons: Emphasis may focus on actions to maximize profit and counter to maximizing the value of the emergency medicine provider. Less emphasis on political equity, financial equity or transparency. CMGs may offer less job security than other practice models. CMGs may also employ hundreds of PAs so individuality may be sacrificed.

REFERENCES

Emergency Medicine Residents Association: [Career Planning](#)

Emergency Medicine Residents Association: [Where Will You Go From Here?](#)

American Academy of Emergency Physicians. [Types of Practice Opportunities in Emergency Medicine](#)

Contract Negotiation

There are many factors to consider when negotiating your employment contract. The following are some of the key things for emergency medicine PAs to review before accepting a position. Keep in mind that a new graduate may have less negotiating power than an experienced EMPA. This does not constitute as legal advice. It may be useful to have legal counsel review any contract before you sign.

1. Compensation and Benefits Package

The compensation for hours worked may be by an hourly wage or a salaried position. Both options may offer a differential pay rate above the base hourly rate for non-day shifts (evening, night, holiday and weekend shifts). It is important to determine the number of hours required to satisfy a full-time position when compensated by a salary. It is also important to consider the entire benefits package in combination with the monetary compensation. For example, an employer may offer an extremely high hourly rate, but not offer benefits or limit the benefits offered. Some employers may allow you to decline benefits in exchange for a higher pay rate. It is also important to determine if your status is as an employee or independent contractor, as the latter may have tax implications. Working in a rural or under-served area may also qualify for loan repayment. Examples of benefits include:

- Health, Dental and Vision Coverage
- Paid Time Off
- Sick Time

- Retirement (401k, pension, etc.) with or without employer match
- CME Allowance
- Professional Expense Reimbursement (DEA registration, NCCPA, state licensing fees, professional memberships, etc.)
- Long Term and Short Term Disability
- Life Insurance
- Health Savings Account (HAS)
- Medical Flexible Spending Account

a. **Probationary Period:** You may be conditionally hired pending successful progress toward more self-sufficient practice over a probationary time frame. This is usually reserved for those hired as new graduates or those without emergency medicine experience. It is important to ask about the onboarding/orientation process, expectations and how you will be evaluated.

b. **Consult Salary Survey Information:** Attempt to gain as much local compensation information as possible when negotiating a contract. As mentioned previously, [The Clinical Advisor offers an annual salary survey](#) that provides regional information. [Advance for NPs and PAs](#) also has salary data. The [AAPA's annual salary survey](#) provides state-by-state salary information. Local compensation information is more difficult to determine. It will be important to network with local emergency medicine PAs. The state AAPA affiliate chapter may be a useful place to start when reaching out for contacts. SEMPA also has board members, liaisons and members from across the country that may be of assistance.

2. Scope of Practice

Whether you will be allowed to practice at the top of your license is important to determine when interviewing for an emergency medicine position. Some emergency department employers of PAs restrict their utilization to lower acuity areas such as a Fast Track. This practice restriction is less common in recent years, but new-graduate PAs and PAs without emergency medicine experience working in the main ED are often required to undergo an onboarding process in which they are required to present every patient to a staff physician or staff PA during their probationary period as mentioned above. Those who complete an emergency medicine postgraduate training program may not be subject to the above requirements, may be hired at a higher salary level, and may be credentialed to perform more complex procedures.

3. Malpractice Insurance Coverage

Most practice types offer a competitive malpractice insurance coverage benefit. It is also helpful to know if coverage is occurrence or claims-made. If it's a claims-made policy, does your former employer pay for tail coverage? SEMPA members have access to malpractice insurance — as well as other types of insurance — through the [SEMPA Insurance Program](#).

4. Signing bonus

It may be possible to negotiate a signing bonus to cover the costs of relocation and to ensure a commitment to work for the employer for a specified length of time. It is worthwhile to consider the reasons why employers offer large signing bonuses, such as hard to staff emergency departments, undesirable geographic location, difficult hospital administration, poor work environment, etc.

5. Profit sharing

Employers may choose to include PAs in profit sharing, which is a share (or percentage) of profits made by the group. Different models of profit sharing include directly depositing the amount into a retirement account or distributing as cash. Other groups may offer end-of-year bonuses based on individual emergency department metrics, productivity or seniority.

6. Restrictive Covenant

Some employers may request the signing of a restrictive covenant, or non-compete clause, as part of the contract to restrict their employees from practicing with another group within a specific geographic area. Careful consideration should be made before signing such an agreement as it may limit your employment opportunities.

■ REFERENCES

Emergency Medicine Residency Association: [Evaluating Offers Requires Comparing Apples to Apples](#)
 American Academy of Physician Assistants: [About Contracts](#)

Strategies for a Successful PA-Physician Collaborative Working Relationship

A successful PA-physician team takes time and work, but it can be one of the most important and rewarding professional relationships for not only the PA and physician, but for patients. Former SEMPA President and long-time practicing EMPA Lynn Scherer, PA-C, MS, and Mania Halluska-Handy, MD, got together to discuss this relationship, which was published in *ACEP Now*. It's a great piece on understanding the relationship and how to develop a good working relationship from both sides.

[Click here to read the article.](#)

The Job Search

The best jobs and job opportunities often come by word of mouth. Try to do your student rotations in the hospital where you would like to work after graduation; even if it's not an emergency medicine rotation you can ask your preceptor to help you make the needed connections. Tell others about your desire to practice emergency medicine after graduation, and if you're already in practice, reconnect with your classmates in hospital-based practices. Lastly, if you are set on living in a particular geographic area, call the local ED, ask to speak to a PA or physician, and ask them whom to speak with regarding a position on staff.



SEMPA offers a robust and comprehensive Career Center that provides numerous tools to help you in your job search and in interviewing. The **SEMPA Career Center** also has full and part-time positions from all over the country posted. You can search by location, job title, company and more, and you can send your CV directly to employers. If you would like to get salary information, [The Clinical Advisor](#) offers an annual salary survey that provides regional information.

Tools and Resources

Emergency medicine is ever-changing and evolving and you never know what patient or patient situation is going to come through the doors of the ED. That's why it's so important to stay as up to date as possible and to have a multitude of tools and resources available to you. The following are some recommended educational materials, and some tools and resources you can use in your practice.

Books

Emergency Medicine: A Comprehensive Study Guide – commonly referred to as “Tintinalli” because Judith Tintinalli is the editor in chief. Considered to be one of the “Bibles” for emergency medical care.

Rosen's Emergency Medicine: Concepts and Clinical Practice – another “Bible” of emergency medicine.

Emergency Medicine Secrets – chief-complaint-based workup, review and reference guide.

Roberts and Hedges' Clinical Procedures in Emergency Medicine – covers an exhaustive list of emergency procedures.

The Radiology of Emergency Medicine by Harris – a complete guide to acute injuries and their radiologic presentation.

Color Atlas of Dermatology – because it helps to know what is underlying those skin lesions.

Free Open-Access Medical Education

FOAMed is a collection of blogs, educational videos and educational modules primarily focused on emergency medicine, and are produced by many of the leading minds in emergency medicine from across the country and overseas. FOAMed can greatly enhance your exposure to and understanding of emergency medicine and is presented in a more entertaining and engaging format than traditional teaching methods.

For more on FOAMed, here is a video exploring what it's all about:

Why FOAM?...Facts, Fallacies, and Foibles.

By Egerton Y. Davis IV, MD.

While the list of FOAMed resources continues to multiply, see the list of helpful blogs and podcasts under **Video Lectures** on the next page.

Emergency Medicine Video Lectures

These are lectures by emergency medicine physician experts giving practice advice.

Emergency Thinking. From Emergency London. By Reuben Stranger MD.

The Path to Insanity. From Social Media and Critical Care. By Scott Weingart MD.

Making Things Happen. From Social Media and Critical Care. By Cliff Reid MD.



Basics of EM

Flipped EM Classroom: This curriculum is based on that created by the Clerkship Directors in Emergency Medicine (Manthey DE, Ander DS, Gordon DC, et al. *Emergency medicine clerkship curriculum: an update and revision. Acad Emerg Med.* 2010;17(6):638-643.) and brought to life on the student curriculum website. This site is based on 10 “Approach to” topics suggested for students when presented with key chief complaints.

embasic.org EM Basic is made for medical students and emergency medicine interns to review the basics of emergency medicine. Each podcast starts just like a patient interaction in the ED starts—with a chief complaint. From there, it goes over the important points of the patient's history and physical examination, the work up, and the basic treatment and disposition of each chief complaint one will encounter in the ED – all in 30-minute easy-to-digest audio podcasts.

foamcast.org: This podcast reviews FOAMed and ties it to core content, providing some review and references for listeners to read on their own, as well as board review questions donated by Adam Rosh of the Rosh Review.

wikem.org: Both a smartphone app and an incredibly useful website, wikem.org helps you to figure out if a patient's symptoms/work up fits with the considered diagnosis. It's a great tool to utilize before presenting a case to the attending, as you can review the differential diagnosis list, and for treatment and disposition planning.

5minuteconsult.com: A tool that provides quick answers and targeted, evidence-based medical content from reliable, trusted resources. This site requires a yearly subscription fee.

Academic Life in Emergency Medicine (ALiEM): This extensive site covers everything from tips and tricks in emergency medicine to a broad EM curriculum based on FOAMed resources.

- [Tricks of the Trade](#)
- [The Approved Instructional Resources \(AIR Series\)](#) was conceived to provide a credible method by which a U.S. emergency medicine resident can receive academic credit for using FOAMed resources. The ALiEM Executive Board will release a list of high-quality FOAMed posts and podcasts in parallel with the CORD residency training curriculum. There will be an accompanying quiz for each list, and ALiEM will track completion. EM residents who complete the quiz can receive credit for Individualized Interactive Instruction (III) from their EM residency for training purposes.

hqmeded.com: A truly comprehensive site that covers nearly every aspect of EM and critical care; primarily video lectures. It's a great adjunct to educational reading or for reviewing procedures.

St. Emlyn's Emergency Medicine FOAMed: A UK-based blog and podcast similar to ALiEM that offers great posts about various clinical topics. They are starting a free online course for EM interns intended to cover all of the core topics in emergency medicine.

Electrocardiograms (ECGs)

ecgweekly.com: This recommended site requires a paid subscription for a weekly ECG video blog by Amal Mattu, MD. The cost is \$26/year, but SEMPA members can get it for \$12 a year. It can help you get better at reading ECGs. They publish an engaging and helpful 15- to 20-minute video lecture covering critical ECG findings for emergency medicine.

Dr. Smith's ECG Blog: This is a free ECG blog by Stephen Smith, MD, who is probably the most knowledgeable guy when it comes to the ECG in STEMI. There are frequent posts with subtle ECG findings, great analysis, and lots of helpful pearls for not missing important findings on ECGs.

Life in the Fast Lane: This is a subsection of FOAMed site. The ECG library has everything you could ask for and more, from basics on how to read an ECG or determine the axis or rate to specific criteria and examples of important ECG findings like Wellens waves, DeWinter T waves, etc.

Airway Management

Essential Emergency Airway Care Course: A FOAMed curriculum focused solely on airway management; comprehensive and something you should work through early in training to maximize your chances for success when you get the opportunity to manage an airway.

EMCrit Intubation Checklist: Scott Weingart's, MD, comprehensive set of videos/lectures/blogs regarding all things airway from bag-valve-mask ventilation to laryngoscopy to surgical airways.

Airway Management and Education Training: Rich Levitan, MD, has published extensively on laryngoscopy and airway management. Review the videos and lectures found on this site and search for his name on YouTube and Vimeo. Take his teachings to heart, and you will be better for it.

Central Lines

EMCrit Central Lines: Scott Weingart, MD, from EMCrit presents a review on how to correctly place a central line.

Toxicology

The Poison Review: If toxicology is of interest to you, this is one of the best sites around.

Tox Now: If you prefer listening rather than reading, this is a great resource.

Critical Care

EMCrit: Many emergency medicine learners listen to this for the excellent review of critical care medicine in the ED it provides. Much of it is upper-level material, but is worth the introduction. EMCrit is devoted to bringing the best evidence-based care from the fields of critical care, resuscitation, and trauma and translating it for bedside use in the ED. Every two weeks, an approximately 20-minute podcast is posted. In between, the site is filled with blog posts, links and EMCrit Wees (miniature podcasts).

Ultrasound

Ultrasound Podcast: Contains everything you could ever want to know about ultrasound scanning.

SonoSpot: Topics in Bedside Ultrasound: This site highlights cases, tips and tricks, research, news, people and events in the field of ultrasonography.

EMsono: A comprehensive web-based emergency ultrasound educational experience. It provides on demand interactive multimedia presentations, review of current journal articles, interesting cases, and discussion forums. SEMPA members receive a 50% discount on a year subscription of EMsono.

Pediatric EM

EM and PEM webucation: An Australian podcast on all things related to pediatric emergency medicine.

Don't Forget the Bubbles: A pediatric blog providing online medical education. It is run by Tessa Davis, Henry Goldstein, Ben Lawton, MD, and Andrew Tagg, MD, and is a collaborative effort to create a Free Open Access Medical Education (FOAMed) resource for pediatrics.

Pediatric EM Morsels: Another pediatric EM blog. Sign up for email updates and get a weekly post about a pediatric emergency medicine topic.

Orthopedics

Ortho Bullets: All ortho, all the time. If you have questions about whether to get an orthopedic consult or whether to splint and follow up, this is a great place to look.

Trauma

The Trauma Professional's Blog: Provides information on injury-related topics for trauma professionals.

Emergency Medicine Education Subscription Sites

Emergency Medicine: Reviews and Perspectives (EM:RAP): The one podcast that just about everyone in EM listens to. It's not inexpensive, but it's highly educational and entertaining. It tends to cover more of the cutting edge or controversial subjects. SEMPA members get a 20% discount on a year subscription.

HIPPO Education: An online video board review course for emergency medicine residents. Again, not free, but this is a comprehensive video library covering everything on the boards. There are two lectures about how to read ECGs that are great. It also has 800 board-style questions. If you want to take the NCCPA CAQ in EM this is a possible preparatory review option. SEMPA members receive a substantial discount.

PEPID Emergency Medicine Suite: This product provides comprehensive information for making decisions in the ED. It gives instant access to a complete medical and pharmacological reference that allows you to quickly drill down to protocols and other critical information that can improve patient safety and speed of care.

Emergency Medicine Practice: This is a monthly publication that takes an evidence-based approach to the differential diagnosis and treatment of both common and critical ED presentations, covers medicine the way you practice it—real patients, real challenges, real cost considerations and real solutions. SEMPA members can subscribe at a discounted rate.



Pediatric Emergency Medicine Practice: This is a monthly publication that covers the challenges of managing pediatric patients in an evidence-based manner, provides abundant clinical pathways, tables, and figures to help you quickly and efficiently match your patients' presentations with the correct diagnosis. SEMPA members also get a discount for this publication.

Rosh Review EM CAQ: This is a comprehensive educational study-guide software program designed for preparation to take the exam for the Certificate of Added Quality (CAQ) in Emergency Medicine. SEMPA members receive a substantial discount.

Annals of Emergency Medicine: Annals of Emergency Medicine, the official journal of the American College of Emergency Physicians, is an international, peer reviewed journal that publishes research of the highest quality; related to the practice of emergency medicine. The papers published in Annals will change your practice! Besides original research, the journal also contains review articles, case based discussions, official guidelines, and more. SEMPA members receive the electronic version free and can order a print subscription for \$12 per year.

Academic/Literature Review

The NNT: You guessed it, this site's name is an acronym for the statistical concept called the "Number-Needed-to-Treat." Want to know what value a daily aspirin has, or whether it is efficacious to give steroids in sepsis? You'll find out quickly and easily here. Do you want to know how much a report of tearing or ripping chest pain should increase your suspicion for dissection? That's covered here as well.

Emergency Medicine Literature of Note: This site contains musings on emergency medicine, clinical informatics, and high-value care.

BestBETs: The Best Evidence Topics (BETs) literature review site was developed in the ED of the Manchester Royal Infirmary, United Kingdom, to provide rapid evidence-based answers to real-life clinical questions, using a systematic approach to reviewing the literature.

Miscellaneous

MD+Calc: From the same people who produce The NNT, mdcalc is a helpful site to keep open on the desktop. Want to calculate corrected sodium in DKA, a "HEART Score," "Wells Score," run through the "Canadian C-spine Rules" or Nexus rules prior to clearing a C-spine? It's all here.

Pedi STAT app: A rapid reference when caring for pediatric patients in the emergency or critical care environment.

Free Emergency Medicine Talks: This page is was created by residents of the Temple University Hospital Emergency Medicine Residency Program to help distribute the vast emergency medicine lecture library of Joe Lex, MD.

How I Keep Up by Joseph Walter, MD


An overview on how to keep up with podcasts, vidcasts, blogs, journals, etc. The picture below shows a general approach to doing this (steps described below).

** [Evernote](#) can help keep everything organized.

*** For Apple users, the apps below are on iOS; and some have Android versions of the same apps but there are many others out there I'm sure.

1. RSS Feeds

Find a site you would like to follow (such as [EMCRIT](#))

- Find the RSS Symbol on the site. 
- Many sites will have other symbols that allow you to follow on Twitter, have posts emailed to you, etc., if you prefer to receive information in a different way.
- Copy the link associated with the RSS feed (right click or hold and select 'copy link URL' on iOS devices).
- Paste this into an RSS Reader of your choice (See step 2).

2. RSS Readers

There are many to choose from (Feedly, NewsBlur, Perfect RSS Reader, River of News, others). They all have their pluses and minuses. NewsBlur has an easy-to-use interface allowing you to sort by your unread posts (look for the button marked "UNREAD") and to save the ones you like in a separate area. You can also double tap the screen and it will take you to the actual site itself. As an example, here are the steps for selecting new sites to follow for NewsBlur:

- To add a site to follow, hit the '+' sign in the bottom left.
- Then paste the RSS URL link from step 1 into the provided space.

3. Podcast Applications

Again, there are many out there. Podcasts (on your iPhone automatically syncs with iTunes), InstaCast, DownCast, PocketCasts, and more — all of which do the job. This is where you can download podcasts and vidcasts to listen to at a time of your choosing (driving to work, walking the dog, etc.).

4. Compilation Lists

This relates to lists of FOAMed topics that many in emergency medicine have found to be useful or have been peer-reviewed.

- There is a weekly review done at Life in the Fast Lane ([LITFL Review](#)) that is quite good.
- Academic Life in Emergency Medicine has a series called the AIR ([Approved Instructional Resources](#)) Series that has links to blogs and podcasts that are high-quality posts that can bolster resident education.

5. Social Networks

- This has basically become synonymous with [Twitter](#). Twitter can be quite overwhelming early on but can be a useful tool once you get to understand it and become comfortable using it.
- A useful place to start for FOAMed is to use the [@Foamstarter](#) Twitter handle and then following all the people that they are following. These are the people who are putting out the most emergency medicine and critical care-based medical education on Twitter and this is regularly updated. It is a good place to start.
- [Tweetdeck](#) lets you browse your feed, save your favorite tweets (especially if you want to find them later), throw questions out to others or leaders in the field, see all the posts that someone you are following has posted, etc.
- There are many [posts on how to use Twitter efficiently](#) with a medical focus.

6. Custom Search Engine

- [FOAMed Search](#) is a very useful tool. This is designed to search through a large array of journals, blogs, podcasts, etc.
- These searches can be useful during those times when you need to know for example; "How do I dose esmolol for refractory v fib?" (search 'esmolol vf') or "I heard someone say on EM:RAP that you don't need to treat strep with antibiotics?" (search "emrap strep").
- Search engines are also useful if you are doing a talk and want links to podcasts or blogs regarding your topic.
- Google Chrome can open a set of web pages automatically when you sign in, which is very handy while working.

7. PubMed Notifications/Library Access

- If you like getting email notifications on new primary research as it is coming out, [this link](#) will show you how it's done. Tip: Auto-forward to your Evernote account in case you want to retrieve it later on.

Emergency Medicine Procedures

Practicing emergency medicine requires the development of expertise in the performance of numerous medical procedures and the ability to interpret the results of diagnostic studies. The National Commission on Certification of Physician Assistants (NCCPA) requires you to have documented procedural experience in and, at minimum, an understanding of certain procedures in order to meet the Emergency Medicine Certificate of Added Quality (EM CAQ) requirements. The following is a list of the procedural experiences that SEMPA recommends that EMPAs have, at minimum, an understanding of:

- Difficult airway management
- Rapid Sequence Intubation
- Emergency cricothyroidotomy
- Ventilator management
- Non-invasive ventilator management
- Capnography
- Chest tube insertion
- Thoracentesis
- Paracentesis
- Central line placement
- Intraosseous line placement
- Peripheral venous access
- ECG interpretation
- Advanced cardiopulmonary resuscitation
- Defibrillation/cardioversion
- Cardiac pacing
- Pericardiocentesis
- Arterial access for blood gas, monitoring and interpretation
- Lumbar puncture
- Radiographs, Computerized Tomography, Magnetic Resonance Imaging, Basic Ultrasound
- Point of care ultrasound
- Local anesthesia
- Procedural sedation
- Simple and advanced wound closure
- Soft tissue and joint aspiration
- Fracture/dislocation management
- Control of epistaxis
- Tonometry

Online Resources

- **New England Journal of Medicine Videos in Clinical Medicine:** 40 top-quality instructional videos, you may seek access through your medical school library.
- **Procedures Consult:** High-quality video, text and illustrations for medical procedures
- See the list of **Free Open-Access Medical Education** sites in **Tools and Resources** section: many of these sites have procedure instructional videos available.

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MISSION

- To advance, protect and promote the role of EMPAs.
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- The innovative leader and advocate for the Emergency Medicine Physician Assistant (EMPA) in the delivery of efficient and high-quality emergency medical care.
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