



## IMPORTANCE OF EMERGENCY MEDICINES: A REVIEW

Azharruddin Mohammed\*<sup>1</sup> and Akthar Sulthana Mohammad<sup>2</sup>

<sup>1</sup>Pharmacist, Abeer Medical Center, Doha, Qatar.

<sup>2</sup>Pharmacist, Al Fathimiya Pharmacy, Doha, Qatar.

**Corresponding Author: Azharruddin Mohammed**

Pharmacist, Abeer Medical Center, Doha, Qatar.

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### ABSTRACT

The review of this article is mainly focussed on the importance and classifications of emergency medicines. One of the hardest decisions a medical profession has to make is the choice of specialty. Many studies have explored what influences the choice of emergency medicine (EM) as a specialty. In this review article, we elaborate on the most important medication called emergency medicines. Additionally, we tackle some of the challenges that emergency professionals face. For example, having to follow a different method of the health professionals, as well as the patients' quality and expectations. This review also addresses some of the concerns regarding the specialty, and choice of medication. Finally, we provide the readers interested in EM with some resources that can provide them with further guidance to decide whether EM is the right choice for them.

**KEYWORDS:** Emergency medicines, medical speciality, illness, injury, trauma.

### INTRODUCTION

Emergency medicine, also referred to as accident medicine, is that the medicine concerned with the care of illnesses or injuries requiring immediate medical attention. Emergency physicians look after unscheduled and undifferentiated patients of all ages. As first-line providers, their primary responsibility is to initiate resuscitation and stabilization and to start out investigations and interventions to diagnose and treat illnesses within the acute phase. Emergency physicians generally practise in hospital emergency departments, pre-hospital settings via emergency medical services, and medical care units, but can also add medical care settings like urgent care clinics. Sub-specializations of medicine include disaster medicine, medical toxicology, ultrasonography, critical care medicine, hyperbaric medicine, medicine, palliative care, or aeromedicine. Different models for emergency medicine exist internationally.<sup>[1-3]</sup>

#### List of Emergency Drugs

Unfortunately, emergencies arise when least expected. People can suddenly suffer a heart attack or have a severe allergic reaction after consuming certain foods. In some cases, emergency situations arise when poisonous snakes attack. Fortunately, emergency medications exist to manage such dire medical scenarios.<sup>[4]</sup>

#### Nitroglycerin

Nitroglycerin is a medication used to treat sudden onset of chest pain, also known as angina. During angina, inadequate amounts of oxygen and blood reach the heart. Death of heart tissues may occur if this is prolonged enough, which then becomes a heart attack.

The National Library of Medicine says that nitroglycerin relaxes the smooth muscle in blood vessels to allow more blood to flow to the heart. Nitroglycerin's side effects include a headache, intermittent light headedness, fainting and low blood pressure.

Nitroglycerin should not be taken with such phosphodiesterase medications such as sildenafil as the combination can cause blood pressure to plummet. Nitroglycerin is available as an ointment, spray or patch that must be taken as physicians indicate.

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#### Epinephrine

##### Epinephrine's side effects include

1. Vomiting
2. Sweating
3. Headache
4. Pale Skin
5. Weakness
6. Nervousness

Dizziness, tremors, stomach problems, vomiting and sweating are epinephrine's other side effects. Epinephrine's serious effects include trouble breathing and a fast or irregular heartbeat.

### Antivenin

Antivenin is an antidote medication for the poisonous bite of the snake. It belongs to the classification of medicines called immunizing agents. Antivenin can also cause a fever, swollen glands and joint problems. Antivenin is given as an injection and its dose depends on the medication strength and severity of the snake bite. Emergency Drugs and Medicine requires the finest skills to handle the patient and save his life. From the initial management to making the quick diagnosis, everything is done carefully to achieve the best outcomes. However, one must know the emergency drugs used in emergency to treat and stabilize the patient as early as possible. Following is the list of commonly used emergency medicines in Casualty.

### Life-Saving Drugs

The emergency drugs including Life saving drugs are

1. Atropine- Used in A-V heart block, restore cardiac rate, reduce respiratory secretions,
2. Adrenaline (Epinephrine)- Sympathomimetic agents used in Cardiac arrest and emergency treatment of allergic reactions (Type I), including anaphylaxis
3. Digoxin -Heart failure, Atrial Fibrillation

### Painkillers (Analgesics)

The emergency drugs including Analgesic drugs are

1. Paracetamol - Pain reliever and anti-pyretic for fever
2. Diclofenac- NSAID used to treat mild to moderate pain
3. Drotaverine - Anti-spasmodic drug used to treat renal colic and abdominal pain
4. Tramadol - Narcotic analgesic used to treat moderate to severe pain
5. Valethamate bromide - Anti-spasmodic drug used to treat abdominal pain

### Cardiac Drugs

The emergency drugs for cardiac diseases are

1. Adrenaline (Epinephrine)- Sympathomimetic agent used in Cardiac arrest and emergency treatment of allergic reactions (Type I) including anaphylaxis
2. Noradrenaline - Catecholamine and inotropic agent used to temporarily correct profound hypotension before fluid replacement therapy can work
3. Dopamine - Catecholamine and inotropic agent used to treat certain conditions, such as low pressure, that occur when you are in shock, which may be caused by heart attack, trauma, surgery, heart failure, kidney failure, and other serious medical conditions
4. Dobutamine -Catecholamine and inotropic agent used to treat heart failure
5. Torsemide- Loop diuretic used to treat edema from Congestive Heart Failure (CHF), liver disease, or a kidney disorder such as nephrotic syndrome

6. Furosemide (Lasix)- Loop diuretic used to treat edema from Congestive Heart Failure (CHF), liver disease, or a kidney disorder such as nephrotic syndrome
7. Digoxin -Heart failure, Atrial Fibrillation
8. Nitroglycerin - used for treating high blood pressure, CHF, MI and Chest pain

### Respiratory Drugs

The emergency drugs for respiratory system are

1. Etophylline and Theophylline- Bronchodilators used to treat symptoms and blockage of airway due to asthma or other lung diseases (eg. emphysema, bronchitis).
2. Dexamethasone- Corticosteroid used to treat allergic disorders, skin conditions, ulcerative colitis, arthritis, lupus, psoriasis, or breathing disorders.
3. Budesonide nebulizer - Corticosteroid, inhalation drug used for Bronchial Asthma.
4. Levosalbutamol and Ipratropium Bromide - Bronchodilator used to treat wheezing and breathlessness caused by underlying lung disease.
5. Acetylcysteine Solution - Mucolytic used to treat abnormal, sticky, or thick mucus secretions in various lung problems such as cough.

### Central Nervous System (CNS) Drugs

The emergency drugs for CNS are

1. Epsolin - Anti-epileptic drug used to control seizures.
2. Phenobarbitone sodium- Barbiturates used as sedative hypnotics and also anti-convulsants.
3. Magnesium sulphate- Seizures associated with Eclampsia and Pre-eclampsia.
4. Lorazepam - Lorazepam used to produce sedation needed in Seizures, particularly status epilepticus; Anti-anxiety drug, anti-convulsant.
5. Diazepam - Benzodiazepine used to produce sedation needed in Seizures, particularly status epilepticus; Anti-anxiety drug, anti-convulsant.
6. Prochlorperazine mesylate - Phenothiazine neuroleptic used to treat acute mania and short term treatment of anxiety. It may also be used to treat the symptoms of nausea and vomiting.

### Gastrointestinal Drugs

The emergency drugs for GIT are

1. Drotaverine - Anti-spasmodic drug used to treat renal colic and abdominal pain.
2. Valethamate bromide - Anti-spasmodic drug used to treat abdominal pain.

### Obstetrics

The emergency drugs used in Obs Gynae are.

1. Drotaverine - Spasmolytic agent used to enhance cervical dilation during childbirth.
2. Tranexamic acid- Coagulation modifier used to reduce bleeding.
3. Magnesium sulphate- used as tocolytic to stop preterm labor.

4. Valethamate bromide - Spasmolytic agent used to facilitate labor in cervical spasm.
5. Methylergometrine maleate - Uterine stimulant used to treat postpartum or postabortal uterine bleeding.

### Allergy

The emergency drugs used for allergy are.

1. Pheniramine Maleate - Anti-histamine drug used for allergic conditions such as hayfever, runny nose, itching skin and skin rashes.
2. Hydrocortisone 100mg - Corticosteroid used for allergies, arthritis, asthma, multiple sclerosis, and skin conditions
3. Dexamethasone- Corticosteroid used to treat allergic disorders, skin conditions, ulcerative colitis, arthritis, lupus, psoriasis, or breathing disorder.
4. Promethazine- Anti-histamine drug used to treat allergy such as itching, runny nose, sneezing, itchy or watery eyes, hives, and itchy skin rashes.

### Antibiotics

The emergency drugs used as antibiotics are

1. Ceftriaxone
2. Amikacin
3. Gentamicin

### Miscellaneous

Below are some miscellaneous emergency drugs used.

1. Tranexamic acid- Anti-fibrinolytic used to reduce bleeding.
2. Tetanus Vaccine- Vaccine given after RTA, wounds from metals, etc. to prevent tetanus.
3. Succinylcholin- Muscle relaxant used for relaxing muscle and also used as general anesthesia.
4. Phytomenadione- Vitamin K1 used to reduce bleeding.
5. Thiocolchicoside- Muscle relaxant with Anti-inflammatory and Analgesic actions.
6. Haemocoagulase - Coagulative and Anti-hemorrhagic properties.
7. Calcium Gluconate injection- Mineral supplement used for hypocalcemic tetany.
8. Ranitidine hydrochloride - H2 Blocker given mostly with other drugs, also used to treat ulcers in the stomach and intestines.
9. Ondansetron - Anti-emetic used to prevent nausea and vomiting.
10. Metaclopramide - Anti-emetic used to prevent nausea and vomiting.
11. L-Ornithine Aspartate - Stable salt of ornithine and aspartic acid used to treat high ammonia levels or severe liver impairment, end-stage cirrhosis.
12. Cholecalciferol - Vitamin D3 used for hypocalcemia, Osteomalacia.
13. Sodium Phosphate enema- Saline laxative used to treat severe constipation or clean bowel before medical procedures.

### Outline of Emergency Medicine

Emergency Medicine may be a medical specialty—a field of practice supported the knowledge and skills required for the prevention, diagnosis and management of acute and urgent aspects of illness and injury affecting patients of all age groups with a full spectrum of undifferentiated physical and behavioral disorders. It further encompasses an understanding of the event of pre-hospital and in-hospital emergency medical systems and therefore the skills necessary for this development.<sup>[5,7]</sup>

The field of medicine encompasses care involving the acute care of internal medical and surgical conditions. In many modern emergency departments, emergency physicians are tasked with seeing an outsized number of patients, treating their illnesses and arranging for disposition—either admitting them to the hospital or releasing them after treatment as necessary. They also provide episodic medical care to patients during off hours and for those that don't have medical care providers. Most patients present to emergency departments with low-acuity conditions (such as minor injuries or exacerbations of chronic disease), but a small proportion will be critically ill or injured. Therefore, the emergency physician requires a broad field of data and procedural skills often including surgical procedures, trauma resuscitation, advanced cardiac life support and advanced airway management. They must have some of the core skills from many medical specialties—the ability to resuscitate a patient (intensive care medicine), manage a difficult airway (anesthesiology), suture a complex laceration (plastic surgery), set a fractured bone or dislocated joint (orthopedic surgery), treat a heart attack (cardiology), manage strokes (neurology), work-up a pregnant patient with vaginal bleeding (obstetrics and gynecology), control a patient with mania (psychiatry), stop a severe nosebleed (otolaryngology), place a chest tube (cardiothoracic surgery), and conduct and interpret x-rays and ultrasounds (radiology). This generalist approach can obviate barrier-to-care issues seen in systems without specialists in medicine, where patients requiring immediate attention are instead managed from the outset by speciality doctors such as surgeons or internal physicians. However, this might cause barriers through acute and important care specialties disconnecting from emergency care.

Emergency medicine are often distinguished from urgent care, which refers to immediate healthcare for fewer emergent medical issues, but there's obvious overlap and lots of emergency physicians add urgent care settings. Emergency medicine also includes many aspects of acute medical care, and shares with family practice the individuality of seeing all patients no matter age, gender or organ system. The emergency physician workforce also includes many competent physicians who trained in other specialties.

Physicians specializing in medicine can enter fellowships to receive credentials in subspecialties like palliative care, critical-care medicine, medical toxicology, wilderness medicine, pediatric medicine, medicine, disaster medicine, tactical medicine, ultrasound, pain medicine, pre-hospital emergency medicine, or undersea and hyperbaric medicine.

The practice of medicine is usually quite different in rural areas where there are far fewer other specialties and healthcare resources. In these areas, family physicians with additional skills in medicine often staff emergency departments. Rural emergency physicians could also be the sole health care providers within the community, and require skills that include primary care and obstetrics.<sup>[7,10]</sup>

### Treatments

Emergency Medicine could also be a primary, or first-contact point of take care of patients requiring the use of the health care system. Specialists in medicine are required to possess specialist skills in acute illness diagnosis and resuscitation. Emergency care physicians are responsible for providing instant recognition, evaluation, care, stabilization, to adult and pediatric patients in response to acute illness and injury.<sup>[8-10]</sup>

### CONCLUSIONS

Medical professionals considering a career in EM should be willing to take care of a diverse group of patients with an array of presentations and medical conditions. Shift work including evenings, holidays, and weekends and the sometimes-fast pace of an ED should be viewed as positives rather than negatives. Medical professionals interested in part-time work, time off without patient care responsibilities, varied clinical sites, or ease of geographic relocation may find EM particularly appealing. EM is a young, vibrant, and important part of the medical delivery system. It provides great satisfaction due to its diagnostic and therapeutic challenges. The ED is often the only place to which a patient or family can turn, and the EP's actions can have a major impact on patients and families. A career in EM can fulfill the ideals that drew many of us into medicine.

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