Airway Course Outline + Objectives

Station 1 A: Respiratory Depression - Apnea – Obstruction Recognition- Management

Crisis Resource Management – review team CRM and use of algorithms. Shared mental models with thinking out loud and closed loop communication.

- Check responsiveness tap and shout. If unresponsive, announce "not responding"
- Upon Drs. Discretion Call EMS/911 if unresponsive, apneic, and or pulseless
- Call for AED and help summon crash cart and emergency equipment and drugs
- Check breathing / auscultate lungs. If absent or abnormal, announce "not breathing"
- Palpate carotid pulse for <10 seconds PATIENT PULSE IS PRESENT- SPO2 Value is Present

Bag-mask ventilation 1 breath every 6 seconds with apnea and pulse and focus on seal - volume – chest rise - and rate - pressure of assisted respirations

Basic Oxygenation - Airway Task Training Skills

Station 1B: Supplemental Oxygen and Airway Adjuncts

Oxygen tank and regulator Faculty Discussion

- Flow meter and oxygen E tank (separate vs. integrated system) – faculty discussion
- Disadvantages of demand valve 60 psi possible causing stomach insufflation and barotrauma

Supplemental oxygenation for spontaneously breathing patient Faculty demonstration 5 minutes

- Nasal cannula 2-5 L/min FIO2 room air 20% oxygen + 4% additional for each liter added (max 40%)
- Non-rebreather face mask 15 L/min– provides maximum oxygen (60-90+%) for patient that is breathing
- Nitrous oxide hood

Airway Management for Upper Airway Patency Faculty demonstration

- Yankauer suction –may need an adapter for the HVE, suction manikin oropharynx
- Demonstration of tongue grasping forceps for patency and Magill forceps for foreign body
- Oral airway – Guedel 80mm, 90mm, 100mm, err on the side of larger, use only in unconscious patient
- Discussion of nasal airways

Bag-mask ventilation for apneic normal lung compliance patient Participant hands-on

- Demonstration of lung sounds auscultation on live patient (vs sim man)
- Resuscitation 1900 mL bag with manometer – adult ventilation volume 600 mL, respiratory rate 1 breath every 6 seconds (10-14/min), peak pressure green (<20 cm H_2O) with mask ideal.
- **"The Seal is the Deal"** – Head tilt, Chin lift, Jaw thrust, Pull face up into mask. Consider oral airway. Connect oxygen line to tank and adjust regulator to 15 L/minute flow
- Do not use if patient is spontaneously breathing, as system only provides 20% (room air) oxygen when not squeezed. Pressure >20 cm may push epiglottis down blocking glottis resulting in gastric insufflation
- Bag-LMA ventilation normal compliance patient (Intubation Manikin) – each participant ventilate
- Mask placement (CE) one person – correct placement of mask and hand

Mask placement (CE) two person preferred – correct placement of mask and hands– each participant ventilate 2 minutes each with normal lung compliance patient

Bag-mask ventilation for apneic normal lung compliance patient Participant hands-on

- Demonstration of lung sounds auscultation on live patient (vs sim man)
- Resuscitation 1900 mL bag with manometer – adult ventilation volume 600 mL, respiratory rate 1 breath every 6 seconds (10-14/min), peak pressure green (<20 cm H_2O) with mask ideal.

Station 1 C: Advanced Adjuncts - Rescue Airways

Supraglottic gastric venting

- i-gel laryngeal mask airway (LMA) sizing for manikin and correct placement. Adults # 3 – 5
- #4 usual for most adults (50-90 kg)

Monitoring

- Pulse Oximetry Reasons for specious values in emergency, hypotension, delay in readings. Useful for oxygen saturation, heart rate, indirect indication that BP systolic is > 80, direct indicator of oxygenation and indirect indicator of ventilation. Critical hypoxia can still occur as a pre-oxygenated, healthy patient may go >6 minutes before saturation levels < 90, so ventilation must be monitored as well.
- Capnography/Capnometry Discuss use in open airway and connection to advanced airway. Need for connectors. Directly monitors ventilation. Earlier warning than oximetry hypoventilation/apnea/obstruction. During CPR maintain >10 mmHg
- Connections of Advanced Airway to oxygen source and capnography
- Blue tooth precordial stethoscope demonstration
- Review adult systolic blood pressures at radial artery > 80 mm – typical pulse oximeter probe site, brachial / femoral artery > 70 mm, and carotid artery > 60 mm. If carotid pulse absent = begin CPR
- Review indications for an Emergency Reversal & Cric / Trach as a last resort.

911 CALL

Date_____**Time**_____

Patient Name: _____

Our Address: _____

Our Phone #: _____

Patient's Age: _____ **Male** ☐ **Female** ☐

Type of Medical Emergency_____

_____

Patient Conscious? **Yes** ☐ **No** ☐

Patient Breathing? **Yes** ☐ **No** ☐

Medications Given _____

_____

Pertinent Medical History _____

_____

Emergency Treatment Currently Underway _____

_____

_____

Any Other Questions _____

_____

Person making call _____

Revised 4/11/2022

EMERGENCY RECORD

Time Event Recognized _____ **Location**_____ **Witnessed:** ☐ Yes ☐ No
Age _____**Weight**_____ **Height** _____ **911 called?** ☐ Yes ☐ No **Time**_____
Conscious at Onset? ☐ Yes ☐ No **Monitoring at Onset:** ☐ ECG ☐ BP ☐ Pulse Ox ☐ Capnography
Brief Medical History: _____
_____
Allergies: ☐ None ☐ _____
Pertinent Medications Given:

Patient Name: _____
DOB or ID# _____
Doctor(s) present: _____
_____
Team present:_____
_____

Time In-Office Resuscitation Ended: _____ **am/pm**

Airway/ Ventilation

Breathing ☐Spontaneous ☐Apneic ☐Agonal ☐Assisted
Ventilation: ☐ Nasal Cannula ☐ Bag-Valve-Mask
☐ Endotracheal Tube ☐ Other: _____
Time of First Assisted Ventilation: _____
Intubation: Time: _____ Size: _____
By Whom: _____
Confirmation: ☐ Auscultation ☐ Exhaled CO_2
☐ Other _____

Circulation

Time Chest Compressions Started: _____
Compressions: ☐ None ☐ Manual ☐ Device: _____
1st Rhythm Requiring Compressions: _____
1st PULSELESS Rhythm: _____

AED Applied: ☐ Yes ☐ No **Time:** _____
Defibrillator Type(s): _____

Bolus Dose / Route Infusion Dose/cc per hr

Time	Breathing: Spontaneous	Breathing: Assisted (✓)	Pulse: Spontaneous	Pulse: Assisted (✓)	BP	Rhythm	AED	**Adenosine** Dose / IV or IO	**Albuterol** Dose / PO	**Amiodarone** Dose / IV or IO	**Aspirin** Dose / Oral	**Atropine** Dose / IV or IO	**Benadryl** Dose / IV or IO	**Epinephrine** Dose/IV or IO	**Nitroglycerin** Dose/Sublingual	**Succinylcholine** Dose/IV or IO	Dose/IV or IO	Dose/IV or IO	**IV Fluid**	**Comments:** i.e.: Response to Interventions

Recorder Printed Name _____ **Provider Printed Name** _____
Date: _____/_____/_____ **Provider Signature** _____

 Original: _____ **Copy for EMS:** _____ **Adapted from The American Heart Association's Get With The Guidelines-Resuscitation**

Are You Ready for Emergency Medical Services in Your Oral and Maxillofacial Surgery Office?

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KEYWORDS

• EMS • Medicolegal • Emergency preparedness • Office-based anesthesia • Crisis resource management

KEY POINTS

- Oral and maxillofacial surgery practices should be familiar with the functionality of their local emergency medical services system (response time, training/ability of responders, onsite hierarchy, and logistics of patient transport).
- Emergency medical services skills and response times can vary; the oral and maxillofacial surgery office should be prepared to stabilize the patient for at least 15 minutes.
- The office should be prepared to manage the patient until Emergency medical services arrives and to coordinate care among the various teams.
- Emergency medical services teams usually follow specific standing medical orders from their medical directors that can conflict with the wishes of the oral and maxillofacial surgeon.
- The oral and maxillofacial surgery office should be prepared to reassert management of the emergency should emergency medical services fail to successfully manage the situation.

INTRODUCTION

Emergency medical services (EMS) provide out-of-hospital acute medical care and transport to definitive care, among other services. Although the frequency of true medical or anesthetic emergencies are currently not tracked, it is likely, and perhaps inevitable, that all oral and maxillofacial surgery (OMS) offices will experience at least 1 emergent situation requiring EMS assistance or transport during their practice lifetime. Because the training, experience, and ability to identify and manage these emergencies are quite variable, the ongoing challenge of anticipation, preparation, and management of emergencies must be continually addressed. This article focuses on the mechanics, interplay, and outcomes once "activate EMS" is reached in any given algorithm.

THE CALL TO 911

The call to 911 provides access to police, fire, ambulance services and EMS via a Public Safety Answering Point (PSAP).[1,2]

The call to 911 is not a sign of weakness, inability, embarrassment, or failure. Rather, it reinforces the OMS's commitment to all patients

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to provide the best possible care, regardless of circumstance. It is both recognized and accepted that patient responses can be unpredictable, and there are established limits to both diagnostic and treatment modalities that are available in any OMS facility. Contacting EMS remains a judgment call on the part of the OMS. However, regardless of circumstance, if events occur that will prevent the patient from returning home for independent living, the call for (at minimum) transport to another facility should not be delayed.

Throughout the United States, there are many different methods of administration, operation, and dispatch of these services, which also vary based on geographic and political boundaries. An example would be a jurisdiction that operates its own PSAP, but not EMS. As a result, there can be overlapping jurisdictions, which often result in delays of longer than 1 minute as information is routed or transferred from 1 jurisdiction to another, or 1 jurisdiction to an independent EMS. In such cases, it is entirely possible to have a 911 call routed to a general information number, resulting in even further delays. Similar delays can occur when the local EMS is occupied with other events; in this instance, a neighboring jurisdiction will be subsequently contacted. An understanding of the structure of these services in any locale, thus, becomes most important in cases of airway compromise, where minutes can make the difference between life and death.

Approximately 80% of 911 calls now come from cell phones, which prevent autolocation of the call, a convenient and time-saving safety feature that is enabled when calls are made from a traditional land line. Autolocation will identify a time of call, name, number, and address of the caller, which typically is voice verified to ensure the accuracy of this information. Additionally, all calls to 911 are recorded. The medicolegal consequences of this recording are obvious, because these phone calls are considered to be a legal document. It behooves each office to learn and understand the specifics of making this call, such that the caller remain calm, organized, and complete in the conveyance of information.

In the proposed "Next-Generation 911" environment, the public will be able to make voice, text, or video emergency calls from any communication device via Internet protocol-based networks. The new infrastructure will also support national networking of 911 services, and transfer of emergency calls to other PSAPs, including any accompanying data.[3]

Surprisingly, the educational requirements for an emergency dispatcher are minimal and optional: for example, a 24-hour course in which students are trained to gather information about the nature of the emergency and patient location, followed by triage and dispatch to the appropriate EMS resource.

OMS offices should ideally develop formal written protocols that describe the specifics of contacting EMS. Specific roles should be preassigned, and instructions given as to who will make the call, and what will be said and revealed to the dispatcher, who typically is trained to follow caller interrogation protocol. This protocol should be reviewed and rehearsed regularly, as part of a larger, comprehensive, written office emergency protocol that also includes procedures and staff roles in responding to an office medical emergency.[4–7] The following questions can be anticipated during this recorded call:

1. 911, What are you reporting?
2. What is the address of the patient?
3. What is the patient's age and gender
4. What telephone number are you calling from?
5. What is your name?
6. Is the patient conscious (awake, conversant, and coherent)?
7. Is the person breathing normally?

If a formal interrogation protocol is not followed, the OMS team should tell the EMS dispatcher the nature of the emergency and, if it is life threatening, they should immediately say so (eg, "the patient is unconscious and not breathing" or "the patient is having a bronchospasm") and specifically request advanced life support (ALS) EMS immediately. Again, the name and address of the office and nearby landmarks to assist in locating the office should be tendered, as well as the nature of ongoing therapy and the telephone number of the office.

The dispatcher will usually ask the caller to stay on the phone, which may occupy the attention of an office staff member whose assistance can often be better used in the ongoing emergency therapy. Occasionally, the dispatcher may have formal written guidelines to verbally "coach" the caller through emergency cardiopulmonary resuscitation or obstructed airway sequences, but there are no guidelines for the dispatcher to offer to the OMS team relating to the management of an anesthetic emergency. As such, little may be gained by staying on the line with the dispatcher, other than to track the arrival of EMS. It is prudent to ask the dispatcher, "How long until advanced life support (paramedics) can be here?" Roam phones can prove to be invaluable in these instances.

The time that the call is made must be documented.

EMERGENCY MEDICAL SERVICES RESPONSE TIMES

EMS response times vary widely, from approximately 5 minutes in Seattle to approximately 12 minutes in New York City.[8,9] Although there are no national standards or requirements, the US national stated goal (by the National Fire Prevention Association) for EMS response to life-threatening emergencies is less than 9 minutes 90% of the time, and that is defined as the time needed "to deploy at the first responder level with AED [automated external defibrillator] or higher treatment level,"[10,11] however, this objective is rarely achieved. As call volumes increase and resources and funding fail to keep pace, even large EMS systems struggle to meet these standards. Sources differ, but the US average is reported to be approximately 10.5 minutes, with considerable variance and a possibility that up to 10% of the calls may take more than 20 minutes. Rural and congested urban areas have the longest response times.[12–15] It is important to note that this "time" from call to first responder presence at the patient's side is not measured in any standardized fashion, with each call center using their own methods. Most commonly, the "response time" time is measured from the time the EMS receives the call to the arrival of EMS in the parking lot. Add another 1 to 2 minutes for PSAP dispatch, triage, and EMS notification, and another 1 to 2 minutes for EMS to actually get into your operatory, and the actual average "response time" is effectively 13 to 15 minutes from the time the OMS calls until a first responder is actually chairside. Fortunately, efforts are underway to standardize cardiac arrest response time statistics from "time of call" to "time of first shock."[16]

OPERATIONAL LOGISTICS OF EMERGENCY MEDICAL SERVICES SYSTEMS

The EMS system in the United States typically follows the Anglo-American model (bringing the patient to the hospital), as opposed to the Franco-German model (bringing the physician to the patient) of service delivery.[17] The majority of EMTs are employed by the municipal emergency service for their area, although this employer could itself be working under a number of models, including an autonomous public ambulance service, a fire department, a hospital-based service, or a private company working under contract.

In the United States, EMS providers give medical care under the authority and supervision of a medical director(s), usually an emergency physician who oversees the policies and protocols of a particular EMS system or organization, and the physician delegates that authority to EMS providers under his or her state's Medical Practice Act and Department of Health guidelines. The EMS activities and decisions may take place "on-line," where the EMS provider contacts the physician via phone or radio for direction or "off-line," where EMS personnel perform some or all procedures that follow standing medical orders. Under this paradigm, EMS personnel effectively assume the role of out-of-hospital field agents of hospital emergency physicians. Standing medical orders for any local are often openly shared when requested. This information would be of significant value to the OMS, who would then be able to anticipate the actions and roles of his or her local EMS.

THE FIRST RESPONDER CREDENTIALS

The credentials, training, and experience of the first responder can range from a policeman with minimal emergency skills and equipment, an EMT with limited basic life support (BLS) skills, to a paramedic with ALS skills and equipment. There are at least 40 types of certification of EMS personnel within the United States, and many of these are recognized by no more than a single state. The federal National Highway Transportation Safety Administration (NHTSA) has an EMS scope of practice model including minimum skills for various emergency responders.[18]

EMS qualification levels (per NHTSA guidelines) include (Appendix 1)[19]:

1. Emergency First Responder. The emergency first responder has completed a course in first aid, cardiopulmonary resuscitation, and AED use. The term "certified first responder" should not be confused with the generic term "first responder," referring to the first medically trained responder to arrive on scene (police, fire, or EMS). The primary focus of the emergency first responder is basic lifesaving care while awaiting additional EMS. If, as is often the case, the "first responder" is a policeman, realize that most in the United States are not trained in BLS, do not carry an AED, and, even if BLS trained, will often not perform BLS.[20]
2. Emergency Medical Technician—Basic (EMT-B). The EMT-B provides BLS and are limited to noninvasive procedures, such as

cardiopulmonary resuscitation, AED use, bag-valve-mask ventilation, placement of airway adjuncts (such as oral airways), pulse oximetry, and glucose testing using a glucometer. EMT-Bs are trained to assist patients with self-administration of prescribed medications, such as nitroglycerin, albuterol, and epinephrine autoinjectors. Under the NHTSA curriculum, EMT-Bs undergo 110 hours of lecture and laboratory study.[17,19]

3. EMT—Intermediate (EMT-I). The intermediate medical technician provides limited advanced emergency medical care. The EMT-I is the new midlevel EMS provider introduced by the NHTSA according to the new EMS scope of practice model. The EMT-I scope consists of all EMT-B level skills, plus the insertion of supraglottic airways, suctioning of an already intubated patient, initiation of peripheral intravenous therapy, including intravenous (IV) fluids, epinephrine, dextrose, glucagon, naloxone, and nitrous oxide. The EMT-I certification program is usually of 6 months duration, which includes clinical experience in operating rooms, emergency departments (EDs), and ALS ambulances.[17,19]
4. EMT-Paramedic. The paramedic provides advanced out-of-hospital emergency medical care, which generally includes some autonomous functioning. In addition to all above EMT skills, the paramedic typically can perform endotracheal intubation and cricothyrotomy, needle thoracotomy, gastric decompression, intraosseous cannula insertion, cardioversion, manual defibrillation, and transcutaneous pacing, and administer approved enteral and parenteral medications. In the United States, paramedic training is considered vocational, with program lengths from 1 to 2 years. EMT experience and certification are prerequisites, and most 2-year colleges offer an associate degree option.[17,19]

ROLES AND RESPONSIBILITIES DURING EMERGENCY MEDICAL SERVICES ARRIVAL

A staff member should meet EMS personnel at a prearranged office entrance, preferable one with direct access to the emergency and guide them to the site. Ensuing communication and events depend on the severity and urgency of the patient condition, the ability of the OMS to successfully provide or continue care and the ability and training of the responder. In certain situations, anxiety levels will be extremely high, which will hamper effective communication. Closed loop communication and empowering team members to speak up is essential. It will be helpful to rely on mnemonics or acronyms such as the familiar "SOAP" note or "SBAR" (nursing hand-off), or the variation on SBAR used by EMS providers, SBAT.[21–24]

*S*ituation/*S*cene: brief description of the incident, patient's age, gender, problem;
*B*ackground: Previous medical history, medications;
*A*ssessment: impression, stable versus unstable, vital signs, electrocardiograph; and
*T*reatment/recommendation or request: treatment given and response, or a specific request.

During this or any emergency event/intervention, a staff member should be delegated to document all activities, to include:

1. The time of arrival of each EMS at the patient's side;
2. The names and titles of all EMS responders;
3. The time of the "hand-off" of the patient;
4. All interventions by EMS personnel;
5. The time the EMS leaves the office; and
6. The time the EMS leaves the parking lot.

EMS will also create their own incident report after the intervention. Therefore, notes taken by the OMS team during the EMS response will be invaluable documentation for the OMS.

ESTABLISHING AND MAINTAINING HIERARCHY WHEN EMERGENCY MEDICAL SERVICES IS ONSITE

It is entirely possible that EMS team(s) and OMS teams will be unknown to each other during the encounter despite advance preparation/rehearsal with local EMS personnel. Several different EMS providers, from different jurisdictions and with varied skill levels may gradually or eventually show up, which is a common scenario. In these situations, hand-off reports must be continually reiterated. The first to arrive can be a police officer, who may be unable or unwilling to assist. The second on the scene is most often a firefighter EMT, because firehouses are usually stationed nearby in strategic places throughout the community, and usually there are more firehouses than ambulance stations. In some cases, the last to arrive may be the one most needed: the EMT-paramedic, with ALS training and equipment. In the emergent situation, the OMS will have to work with those present and quickly ascertain their scope of training,

experience, and competence, which may not be obvious from their uniforms or insignia. Once confident in the skills of the EMS team, the OMS may decide to transfer care and responsibility.

To reiterate, the OMS can retain control of the patient while in his or her office until he or she is confident in the EMS capabilities and disposition of the patient. This act may require the OMS to contact the medical director of the EMS team to clarify the situation and assert control. The phone number of the local EMS medical director (eg, the ED direct line) should be part of your written office emergency protocol.

In the unfortunate possible event that various EMS providers and/or OMS cannot agree on treatment, will not communicate with each other, or will not coordinate as a team, as long as the patient is in the OMS office, the OMS has the right to continue to control the emergency treatment. Should the OMS wish to continue treatment control, and transport is necessary, then the OMS must accompany the patient during transport or cede control once the patient is outside of the office. EMS operates under the supervision of the physician in the ED and is directly responsible to that medical director and not the OMS. This situation may trigger discord, because the EMS may not take direction from the OMS, especially in instances where that recommended direction deviates from formal protocols. It is crucial to be mindful of the fact that, although EMS personnel may have more experience with ACLS and cardiac resuscitations, they will have only limited experience, at best, with anesthesia emergencies. In the event that the OMS retains control over the patient once EMS is on the scene, EMS may legally decline to work under the OMS supervision and will not provide treatment that does not comport with the EMS protocols. In particular, conflict may arise over methods of securing and maintaining the airway. For example, EMS providers are usually not familiar with laryngeal mask airways and may remove them on scene. Scenarios can take years to legally unfold; documentation is crucial.

EMERGENCY MEDICAL SERVICES TREATMENT AND TRANSPORT PROTOCOLS

There is ongoing controversy regarding the most effective way to use EMS resources. There are essentially 3 concepts, euphemistically called: "scoop and run," "stay and play," and "sweep and treat."[25] The stay and play concept espouses definitive treatment at the scene before transport and relies on improved EMS capabilities. This choice is not well-supported in the literature, and has been shown, in many cases to be detrimental to patient outcomes.[25–28]

The scoop and run concept is limited to immediate stabilization by EMS, followed by rapid transport to definitive care. It is generally believed by most medical directors that it is better to scoop and run than stay and play. However, current data relate only to the urban environment, where transport times to trauma centers are short. There may be more need for advanced techniques (ie, stay and play) in the rural environment or where transport times are prolonged. Stay and play is only useful if you cannot get the patient to a hospital in time without detrimental deterioration.[25–28]

Petrie and colleagues[28] report that, "even in large EMS systems, the median intubation rate is rarely more than 1 per year, with upward of 40% of practicing paramedics having performed none in any given 1-year period." Therefore, they ask, "Is it time to throw out intubation as a prehospital skill, given the realities of EMS practice?"

The final approach is sweep and treat, which means to perform most major interventions during transport. "There is ample experience . . . that for the very seriously injured, an en-route dedicated pre-hospital resuscitation . . . produced unexpected survivors."[25–28] In other words, transportation should not be delayed if stabilization can be accomplished en route: intubation, control of hemorrhage, medication delivery, and other services.

> *In summary, in an urban environment with relatively short transport times . . . there is no strong evidence supporting field ALS (by EMS) – and only a suggestion of harm. It is acknowledged that in very selected circumstances ALS maneuvers might be life-saving, but the rarity of such patients and the difficulty in maintaining competence if practiced only in these circumstances preclude any advantage at the population level to implementing pre-hospital ALS. During the design phase of a new trauma system in an urban setting, emphasis should be placed on efficient transport, on limited BLS interventions at the scene and on triage to a designated trauma center.*[28]

THE HAND-OFF TO EMERGENCY MEDICAL SERVICES AND THE EMERGENCY DEPARTMENT

The EMS team will ask for a copy of your procedure and anesthesia record as a record of what transpired before they arrived to give to the ED. However, the

OMS′ clinical record is a legal document that is the property of the OMS′ office; the original should be retained by the OMS. You may be asked to make a copy of the clinical record, but it will almost certainly be incomplete at the time of transport, and may not accurately reflect transpired events. Tendered copies of medical records should be clearly marked as "INCOMPLETE RECORD." After the event, the OMS team should complete the record while it is still fresh in their memory and data are still available from the printout or memory of the vital signs monitor.

An OMS staff member should be delegated to record all events during EMS involvement and document those events on a separate emergency record form. This document will serve as a concise record of the event, giving the EMS team and the ED needed information. The emergency record, like the anesthesia record, should include vital signs every 5 minutes at a minimum, drugs given (doses and times), treatment given, response to interventions, and so on. It is recommended that a simple form for making quick notes be used during the actual emergency (Appendix 2), and afterward when there is time to recreate the event more thoroughly a more comprehensive form should be used (Appendix 3). Copies of these forms may be downloaded at http://www.fdsahome.org. These forms should also be marked as an "INCOMPLETE RECORD," then make a copy and give the copy to EMS to take to the ED.

The OMS should be informed of the name and location of the transport destination, and should call that facility to facilitate transfer of information and permit any preparation necessary by that facility. The SBAT format (*S*ituation, *B*ackground, *A*ssessment, *T*reatment/response) provides a concise report of the incident. Should the OMS elect to be present at the facility, this information can also be shared with health care providers.

POLICE AND EMERGENCY MEDICAL SERVICES

As discussed, the first responder at the scene may be a police officer, who will not be able to assist in the management of the emergency, but nonetheless may be in the office throughout the emergency. Ramifications of police presence include:

- Purposeful or inadvertent interference with the emergency response;
- Taking of records without permission;
- Refusal to allow OMS to leave the office and proceed to the ED; and
- Possible attempts to charge the OMS with "assault and battery."

Fortunately, these incidents are rare, but their rarity has left a void in the literature as to how to handle these situations. These issues seem to stem from the mistaken perception that the patient should not have suffered an emergency in a "dental" office undergoing a "dental" procedure and, therefore, by default the OMS must have done something wrong.

In general, the OMS does not have to permit the police into your office or provide them with records without a warrant. However, calling 911 generates a special situation, because you are for all intents and purposes inviting the police (as a first responder) into your office. Overall, remain calm, respectful, and compliant, and follow all instructions. The OMS's duty is to the care and treatment of the patient. If a police officer attempts to interfere with necessary resuscitation efforts the OMS should calmly remind the officer that the OMS is performing a life-saving procedure. If the police officer detains you, remind him that your presence is needed at the ED.

Rules in the Health Insurance Portability and Accountability Act of 1996 provide a wide variety of circumstances under which medical information can be disclosed for law enforcement–related purposes without explicitly requiring a warrant, one of which is in a medical emergency in connection with a crime. In other words, law enforcement is entitled to your records by simply asserting that you are now a suspect in a crime (ie, assault and battery) and they may take them from your office.[29]

IMPROVING THE EMERGENCY MEDICAL SERVICES–ORAL AND MAXILLOFACIAL SURGERY OFFICE INTERACTION

Given the problems that can occur with EMS in the OMS office, what can be done to understand how EMS works in your community, and to improve outcomes when EMS is activated? Effective teams practice and train together, but EMS crews often have revolving partners and rarely train with other provider teams, and EMS and OMS providers never train together, leading to potential medical errors. Highly functioning teams require effective leadership, group feedback, coordination of efforts, effective closed loop communication, and familiarity with tasks and individual roles, as described in advanced cardiac life support guidelines.

Regular office emergency simulation training can be used as an opportunity to get to know the local EMS team and to train together. Team simulation involving EMS can be requested and scheduled with your local EMS. In most cases, the EMS teams will be impressed with your initiative and happy to participate. Ideally, a high-fidelity

Fig. 1. Luer lock versus latex port.

SimMan simulator, an advanced cardiac life support or BLS mannequin, or at least an "airway management head" should be used for this exercise. Team simulation involving EMS then presents a great opportunity to inquire about the EMS systems, policies, response times, and protocols. An office tour can be arranged to share with them your emergency equipment and skills, and to ask for suggestions to improve your preparedness. Similarly, the medical director of your local EMS service (usually a physician at your local hospital ED) can be contacted to discuss their protocols or standing medical orders as they relate to the OMS office and EMS interface.

There are some specific EMS–OMS incompatibilities built into many OMS offices that should be considered. Most OMS offices are still using IV lines with latex injection ports, but the norm in medicine and EMS is to use Luer lock injection ports. This difference makes it difficult for EMS to use our IV lines in an emergency and may delay administration of emergency drugs. OMS offices should consider making the transition to all Luer lock IV lines (Fig. 1). Additionally, the OMS should be sure that preloaded emergency drugs come with both needles and Luer lock options (Fig. 2).

Performing chest compressions in a dental or surgery chair is unrealistic and ineffective. The chair is heavily padded and likely to rock under the pressure of compressions. OMS operatories are often too small to permit transferring the patient to the floor and still give complete team access to the patient. A team member should be prepared to slide a stool under the head of the surgery chair to stabilize the chair and to place a backboard under the patient (Fig. 3).

Small dental operatories (and even the typically larger OMS operatories) may make the EMS response difficult if the EMS team and all their equipment will not fit, so consideration should be given during the design of OMS operatories to make them large enough to accommodate an EMS team (Fig. 4). If the operatory is not large enough to fit the EMS gurney beside the dental chair, as is often the case, then the OMS should keep a patient transfer stretcher (such as the one shown in Fig. 5) in the office to facilitate transfer of the patient from the dental chair to the EMS gurney in the hallway.

GOOD SAMARITAN LAWS AND THE OFFICE EMERGENCY

Every state has a Good Samaritan law offering immunity to voluntary providers of emergency care, the specifics of which vary, but they do not apply when the emergency befalls a patient under active treatment in the office. They generally do apply to a bystander (eg, a family member in the waiting room) who suffers a medical emergency and the OMS team responds.[30]

There are generally several caveats for Good Samaritan protections to apply. First is that the injured victim must not object to the care offered or provided, but implied consent is assumed if the event is life threatening and the victim is unconscious. Second, the provider must act "reasonably and prudently." Stated another way, they do not apply if the provider acts in a "willful, wanton, or reckless manner." Third, the provider must not act in the hope of being paid or rewarded.[30]

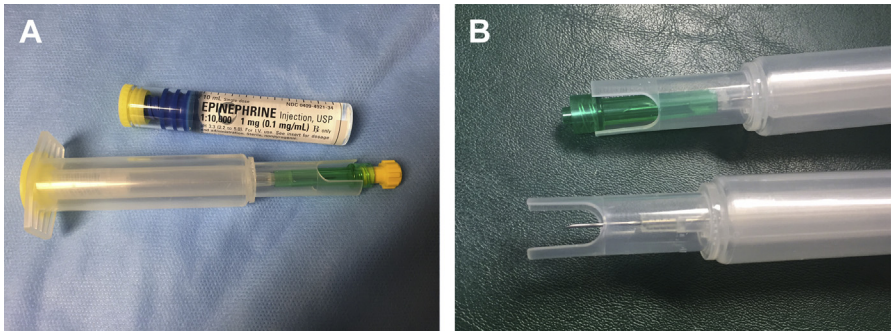

Fig. 2. (*A*) Luer lock and needle syringe. (*B*) Luer lock versus needle syringe.

Fig. 3. (*A*) Cardiopulmonary resuscitation (CPR) setup for surgery chair. (*B*) CPR setup for surgery chair.

Florida's Good Samaritan Act is a representative example of state statutes[31]:

Florida Statute 768.13 Good Samaritan Act; immunity from civil liability.—

> *(2) (a) Any person, including those licensed to practice medicine, … who … in good faith renders emergency care or treatment either in direct response to emergency … outside of a hospital, doctor's office, or other place having proper medical equipment, without objection of the injured victim or victims thereof, shall not be held liable for any civil damages as a result of such care or treatment or as a result of any act or failure to … where the person acts as an ordinary reasonably prudent person would have acted under the same or similar circumstances.*

Additionally, be aware that most states require written notification of the state Dental Board within 48 hours of any emergency requiring the transfer of a patient to the ED.

Florida Administrative Code, Rule 64B5-14.006 Reporting of Adverse Occurrences[32]

> *1. Definition:*
> *a. Adverse occurrence - . . . an incident that . . . requires hospitalization or emergency room treatment of a dental patient.*
> *2. Any dentist practicing in the state of Florida must notify the Board in writing by registered mail within 48 hours of any . . . adverse occurrence that occurs in the dentist's outpatient facility.*

The board notification requirement should never deter an OMS from requesting emergency assistance from EMS; state boards generally understand that getting emergency assistance is always the better decision and is not an admission of error on the part of the dentist.

Fig. 4. (*A*) Cardiopulmonary resuscitation (CPR) set-up for surgery chair. (*B*) Larger oral and maxillofacial surgery operatory. (*Data from* [*A*] 2017. Available at: https://pxhere.com/en/photo/569155; and Available at: https://creativecommons.org/publicdomain/zero/1.0/. Accessed July 25, 2017; and [*B*] License: CC0 Public Domain. Available at: https://www.baypines.va.gov/BAYPINES/clinemp/DentalCareer/1Benefits.asp. Accessed July 31, 2017.

Fig. 5. Folding transfer stretcher.

SUMMARY

The OMS should expect that what can happen, will happen eventually. But due to the rarity of medical emergencies, the OMS will undoubtedly have an inherent response conflict ranging from, "I can't believe this is happening," and "I have no experience," to "first do no harm." But patients generally do better when you act, than when you do not. Remember Campbell's Law: "In an emergency, an act of omission is usually worse than an act of commission" (Robert L. Campbell, DDS, oral communication, February 2017). In other words, do not let the fear of making a mistake cause you to freeze and do nothing. Generally err on side of aggressive treatment. Empower your staff to act and communicate. There are many documented malpractice cases where EMS arrived and found the dental team standing around doing nothing (or not enough) while they wait for EMS, and by then it is usually too late.

It should be obvious from this discussion that there is more to activating EMS than just telling a staff member to "call 911" and that forethought, planning, documentation, and team simulation training must be undertaken to make it effective.

EMS is not definitive care, the ED is, and that is where the patient needs to be a soon as possible. Do not count on EMS to arrive and "save the day." The office-based OMS providing office-based anesthesia must be proactive and call early in an emergency, and must be prepared to stabilize and maintain the patient for at least 15 minutes.

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APPENDIX 1: SKILL SETS FOR VARIOUS LEVELS OF EMS PROVIDER

Emergency Medical Responder	Emergency Medical Technician	Advanced EMT	Paramedic
EMS provider airway and breathing skill set			
Oral airway BVM Sellick's maneuver Head-tilt chin lift jaw-thrust Modified chin lift obstruction–manual Nasal cannula oxygen Nonrebreather face mask Upper airway suctioning	Humidifiers Partial rebreathers Venturi mask, manually triggered ventilator Oral and nasal airways	Combitube, King airways	BiPAP/CPAP Needle chest decompression Chest tube monitoring Cricothyrotomy NG/OG tube Endotracheal intubation Airway obstruction removal by direct laryngoscopy PEEP
EMS provider assessment skill Set			
Manual BP	Pulse oximetry Manual and auto BP	Blood glucose monitor	ECG interpretation interpretive 12 Lead Blood chemistry analysis Capnography
EMS provider cardiac skill set			
CPR AED	Mechanical CPR		Cardioversion Carotid massage Manual defibrillation TC pacing
EMS provider pharmacologic skill set			
Assisted medication • Unit dose autoinjectors for self-care	Assisted medications • Assisting a patient in administering their own prescribed medications, including autoinjection Tech of Med administration • Buccal • Oral Administered Meds • OTC medications (glucose, ASA for chest pain of suspected ischemic origin)	Peripheral IV insertion IV fluid infusion Pediatric IO Tech of Med Administration • Aerosolized • Subcutaneous • Intramuscular • Nebulized • Sublingual • Intranasal • IV push D50, Narcan Administered Meds • SL nitroglycerine • SQ or IM epinephrine • Glucagon and IV D50 • Inhaled beta agonist • Narcotic antagonist • Nitrous oxide for pain relief	Central line monitoring IO insertion Venous blood sampling Tech of Med Administration • Endotracheal • IV (push and infusion) • NG • Rectal • IO • Topical • Accessing implanted central IV port Administered Meds • Physician-approved medications • Maintenance of blood administration • Thrombolytics initiation

Abbreviations: AED, automated external defibrillator; ASA, aspirin; BiPAP, biphasic positive airways pressure; BP, blood pressure; BVM, bag-valve-mask; CPAP, continuous positive airway pressure; CPR, cardiopulmonary resuscitation; ECG, electrocardiograph; EMS, emergency medical services; EMT, emergency medical technician; IM, intramuscular; IO, intraosseous; IV, intravenous; NG/OG, nasogastric/orogastric; OTC, over the counter; PEEP, positive end-expiratory pressure; SL, sublingual; SQ, subcutaneous; TC, transcutaneous.

From National Highway Traffic Safety Administration. National EMS scope of practice model. 2007. Available at: https://www.ems.gov/education/EMSScope.pdf. Accessed July 24, 2017.

APPENDIX 2: SIMPLE MEDICAL EMERGENCY RECORD FORM

Medical Emergency Record

BVM – bag valve mask
PPV – positive pressure ventilation
OPA – oropharyngeal airway placed
SUX – succinylcholine, IV
iGEL – iGEL supraglottic airway
ETT - Intubate
End Tidal **CO_2**
REMEMBER:
Epi 1:1,000 = **IM**
Epi 1:10,000 = **IV**

Time of 911 call_____ Time of EMS arrival_____

EMS status: ____police ____EMT ____paramedic _ ___unidentified

PATIENT NAME _____**Date**_____

◯ IF APPLIES

TIME	STATUS / INTERVENTION	Vital Signs (BP, HR SpO_2, CO_2 waveform?)	Awake, Breathing, Talking
0935	e.g. Lost airway, Triple airway, suction	e.g. 120/80 ;65; 95%; Yes (No)	A B T
0937	BVM with PPV @ 15 lpm O_2	92%; Yes (No)	A B T
0939	iGel placed	139/92; 93; 99%; (Yes) No	A B T
0940	Narcan 1ml given IV	(Yes) No	(A) (B) T
		Yes No	A B T
		Yes No	A B T
		Yes No	A B T
		Yes No	A B T
		Yes No	A B T

Courtesy of Robert C. Bosack, DDS, Orland Park, IL.

APPENDIX 3: COMPLETE MEDICAL EMERGENCY RECORD FORM

MEDICAL EMERGENCY RECORD

(Time line, sympts, Dx, airway, 0,, IV, meds./CPR)
Time (1 large block = 5 mins; 1 small block = 1 min

Patient Name: _____ Date: _____
Diagnosis: _____ Time: _____ 911 Call Time _____

		:	:	:	:	:	:
Vital Signs	Pulse						
	Systolic BP						
	Diastolic BP						
	Pulse Oximeter						
	Pulse - Reg. Or Irreg.						
Signs/Sympts./Events: table at right & bk of form for add. details							
Diagnosis: enter #, and place # next to EMERGENCY below							
EMERGENCY:	**Drug:**						**Total Dose**
For any emergency	IV Fluids: NS, LR, Other:						
	Oxygen - L/min.						
	Airway Management:						
Acute Adrenal Insufficiency	Hydrocort./Dexameth.– mg IV						
ACS - Angina Pectoris	Nitroglyc. - spray / tab (sublingual)						
ACS - Myocardial Infarction	Morphine Sulfate - mg IV						
	Aspirin - mg po (tablet)						
Allergic Reaction: • Mild • Severe • Anaphylaxis	Epineph. 1:1000 - mg IM						
	Benadryl - mg IV						
	Decadron - mg IV						
	Ranitidine – mg IV						
Bronchospasm / Asthma	Albuterol - puff (metered dose)						
	Epi. - mg 1:1000 IM / 1:10,000 IV						
CARDIAC DYSRHYTHMIAS							
• Bradycardia (symptomatic)	Atropine - mg IV						
	Epinephrine – mcg / min						
• Tachy.- Nar., Reg.(SVT)	Adenosine - mg IV						
• Tachy.- Nar., Irreg.	Diltiazem - mg IV						
	Metoprolol - mg IV						
• Tachy. - Wide, VT	Amiodarone - mg IV						
	Procainamide - mg IV						
	Adenosine – mg IV						
• Tachy. - Wide, VT Torsades	Mag. Sulfate – mg IV						
• Ectopy – Significant: UF, MF	Lidocaine – mg IV; mg / min						
Cardiac Dysrhytmias – Pulseless Arrest Rhythms							
• VF / VT (pulseless)	Epinephrine (1:10,000) - mg IV(E)						
	Amiodarone - mg IV(A)						
C,D;C(IV),D;C(E),D;C(A),D; Repeat C(E),D;C(A),D	Lidocaine - mg IV						
	CPR (C) / Defib. (D)						
• Asystole / PEA	Epinephrine (1:10,000) - mg IV						
	CPR (C) / Defib. (D)						

#	SIGN/SYMPTOM
	APPEARANCE
	Di = Diaphoresis
	T = Tearing
	Sw = Swelling; eye, lip, tongue
	Pa = Pallor
	Cy = Cyanosis
	SKIN/SOFT TISS.
	P = Pruritus
	R = Rash
	H = Hives
	E = Erythema
	NEUROLOGIC
	A = Anxiety
	CN = Confusion
	Wk = Weakness
	LC = Loss consc.
	CARDIOVASCULAR
	CP = Chest Pain
	Br = Brady
	Tk = Tachy
	Thr = Thready
	Plp = Palpitations
	NP = No pulse
	RESPIRATORY
	Cr = Crowing
	SR = Supra-sternal retraction
	NE = No exchange
	RV = Resist.Vent.
	Wh = Wheezing
	Cgh = Cough
	G = Gasping
	S = Stridor
	Dy = Dyspnea
	Hp = Hypopnea
	A = Apnea
	MUSCULOSKELETAL
	Ms = Musc. spsm
	Fl = Flail
	Wk = Weakness
	R = Rigid
	GASTROINTESTINAL
	N = Nausea
	V = Vomiting

AIRWAY ADJUNCTS
N = Nasal Mask
F = Face Mask
C = Cannula
NA = Nasal AW
OA = Oral AW
E = ET
L = LMA
i = igel
IA = Inhal. Adptr.
Cr = Cricothyrot.

Time (1 block = 5 min., 1 dot = 1 min.)		:	:	:	:	:	**Total Dose**
Emesis & Aspiration	Succinylcholine – mg IV (intub.)						
	Rocuronium – mg IV (intub.)						
	Sugammadex – mg IV						
Hyperventilation	Midazolam - mg IV						
Hypertension	Labetalol - mg IV						
	Esmolol - mg IV / mcg/kg/min						
	Hydralazine - mg IV						
Hypoglycemia - Insulin Shock	Glucose p.o. – packets / juice						
	Dextrose - mg IV						
	Glucagon - mg IM						
Hypotension	Ephedrine - mg IV						
	Phenylephrine – mg IV						
	Vasopressin 20u/L– ml/min.						
Intra-arterial Injection	Lidoocaine 1% (w/o epi) - ml IV						
Laryngospasm	Succinylcholine - mg IV						
	Rocuronium - mg IV						
	Sugammadex – mg IV						
Respiratory Depression	Naloxone (Narcotic) - mg IV						
	Flumazenil (BZDP) - mg IV						
Syncope	Ammonia - inhalant vial						
	Atropine – mg IV						
Seizure	Midazolam - mg IV / IM / buccal						
	Valium - mg IV						

TIME:	EVENTS / SYMPTOMS / NON-PHARMOCOLOGIC INTERVENTIONS / COMMENTS:

EMERGENCY STAFF/ DISCHARGE

Assist. #1:		Assist. #3:		Aux. Desk #1	
Assist. #2:		Assist. #4		Aux. Desk #2:	
Patient discharged to:				Time:	
Discharge Condition:					

Courtesy of Richard C. Robert, DDS, San Francisco, CA.

Layout of Algorithm Charts

Treatment Algorithm	**Type of Emergency**
Perform **Primary Assessment**	✓ **Level of Consciousness,** ✓ **Airway, Breathing, Circulation** ✓ **Supplemental Oxygen**
Further Physical Assessment	**SpO2, Auscultate Lungs** **Breathing Status**
Interventions	**Assist Ventilation, Add Airway Adjuncts, Drug Therapy, Reversal Agents, CPR**

Respiratory Depression/Obstruction

Assess ! — Triple Airway: Head Tilt / Chin Lift / Jaw Thrust

Breathing ?

YES

$SpO_2 \geq 95$

- ✓ Support
- ✓ Consider Reversal

$SpO_2 < 95$

- ✓ ↑ Supplemental O_2
  - Cannula 4-6 L/min
  - NRB 6-10 L/min
- ✓ Assist Rate/Depth of Ventilation
  - BVM 15 L/min
- ✓ Consider Reversal

NO

- ✓ BVM Ventilation (12 bpm) (O2 15 L/min)

Chest Rise ?
$SpO_2 \geq 95$?

- ✓ If No, Add Adjunct:
  - ✓ Oral Airway
  - ✓ Supraglottic Airway
- ✓ Consider Reversal

Opioid Reversal	
Naloxone	0.4 mg/ 1 mL x 2 (SLI, IV)

BZ Reversal	
Flumazenil	0.2 mg / 2 mL x 5 (SLI, IV)

Treatment Algorithm

ALLERGIC REACTION/ BRONCHOSPASM

Perform Primary Assessment

- ☑ Responsive/Unresponsive
- ☑ Airway ☑ Breathing ☑ SpO_2
- ☑ Supplemental Oxygen
- ☑ Pulse ☑ Blood Pressure

Signs and Symptoms

- CUTANEOUS: Pruritis, Rash, Hives
- WHEEZING

Treatment

- **Benadryl**
  - PO: 50 mg /1 mL
  - IM: 50 mg/1 mL
  - IV: 25 mg/ 0.5 mL Dilute
- **Albuterol 2 puffs**
  - or
  - **Epinephrine IM**
  - 1:1000 0.3 mg/0.3 mL

Treatment Algorithm

FOREIGN BODY

Perform Primary Assessment

☑ Responsive/Unresponsive
☑ Airway ☑ Breathing ☑ SpO_2
☑ Supplemental Oxygen
☑ Pulse ☑ Blood Pressure

Assess Symptoms

If Breathing
CONTINUE O2

Distress/Apnea
NO BLIND SWEEP

Treatment

EMS!!!
Consider reversal agent ★

EMS!!!
Heimlich/Chest Thrusts
Examine oropharynx
Delicate Directed Suction
Magill Forceps?
Consider Reversal Agent ★

TRANSFER IF FOREIGN BODY NOT FULLY RETRIEVED!

★ Reversal Agents

Drug	*Dose*
Naloxone	0.4 mg/1mL x 2
Flumazenil	0.2 mg/2 mL x 5

Treatment Algorithm

ASPIRATION

Perform Primary Assessment

☑ Airway ☑ Breathing ☑ SpO_2
☑ Supplemental Oxygen
☑ Pulse ☑ Blood Pressure

Assess Symptoms

Gastric Contents in Oropharynx

EMS!!!

Treatment

Place Head Lower than Feet
Roll to Right Side
High Volume Large Bore Suction

SpO2> 95

Monitor and Support
Auscultate Lungs
Consider Reversal Agents

SpO2 < 95%

Auscultate Lungs, Confirm Wheezing
Albuterol 2 puffs (cooperative) OR
Epinephrine 0.3mg/0.3mL IM q 3 min

Treatment Algorithm

LARYNGOSPASM

Perform Primary Assessment

- ☑ Responsive/Unresponsive
- ☑ Airway ☑ Breathing ☑ SpO_2
- ☑ Supplemental Oxygen
- ☑ Pulse ☑ Blood Pressure

Assess Symptoms

IF CROWING AND/OR SpO2 >95

IF NO VENTILATION NO CHEST RISE AND/OR SpO2 <95

Treatment

SUCTION

CONTINUE POSITIVE PRESSURE O2

IF SpO2 < 95

SUCTION

CONSIDER EMS

CONSIDER SUCCINYLCHOLINE 20MG/1mL IV

CONTROL VENTILATION

CONSIDER ENDOTRACHEAL INTUBATION

Treatment Algorithm

HYPOTENSION

Perform Primary Assessment

- ☑ Airway ☑ Breathing ☑ SpO_2
- ☑ Supplemental Oxygen
- ☑ Pulse/SpO_2 ☑ Blood Pressure

Hypotension Persists

Elevate Legs / IV Fluids

HR < 60 → Atropine

HR > 60 → Ephedrine

Treatment

Atropine

SLI: 0.5 mg (0.5 mL) Q5M x 4

IV: 0.5 mg (0.5 mL) Q3M x 4

Ephedrine

SLI: 25 mg (0.5 mL) Q5M x 2

IV: 10 mg (0.2 mL) Q3M x 5

Treatment Algorithm

HYPERVENTILATION

Perform Primary Assessment

- ☑ Responsive/Unresponsive
- ☑ Airway ☑ Breathing ☑ SpO_2
- ☑ Supplemental Oxygen
- ☑ Pulse ☑ Blood Pressure

Assess Signs and Symptoms

- Respiratory Rate
- Tingling Extremities
- Carpopedal Spasm

Treatment

- Verbal Coaching to Respiratory Rate < 20
- Reassurance
- Consider sedation for anxiety OR
- ★ Reversal agent for paradoxical reaction

★ Reversal Agent

Naloxone 0.4 mg/1mL x 2 Flumazenil 0.2 mg/2 mL x 5

Treatment Algorithm

CHEST PAIN

Perform Primary Assessment

- ☑ Responsive/Unresponsive
- ☑ Airway ☑ Breathing ☑ SpO_2
- ☑ Supplemental Oxygen
- ☑ Pulse ☑ Blood Pressure

Chest Pain Persists

- If Unprovoked, New Onset, or Unsure:
- If Provoked: NTG 1 Tab SL

Treatment

- **EMS!!!** NTG prn Q 5min; SBP>90 Non enteric ASA 325 mg
- If No Relief
- If Relief: Resume Tx & Discharge

Consider IV Opioid: Morphine 2.5 mg = Fentanyl 25 mcg = Nalbuphine 2.5 mg.

Treatment Algorithm

CARDIAC ARREST

Perform Primary Assessment

☑ Unresponsive

☑ Airway Open ☑ NOT Breathing

☑ NO Pulse

IMMEDIATE ACTION

ACTIVATE EMS

CALL FOR AED & TURN ON

IMMEDIATE CHEST COMPRESSIONS ~ FAST & DEEP

Treatment

COMPRESSIONS:VENTILATIONS 30:2 BVM +15 L O2

FOLLOW AED INSTRUCTIONS

DO NOT STOP COMPRESSIONS UNLESS AED IS ANALYZING OR SHOCKING

Treatment Algorithm

ACLS

BLS in Place

☑ 911

- ☑ CPR (BVM 30:2)
- ☑ AED Attached and orders first shock

How Much Time Has Passed?

CPR 2 Min.	IV / Advanced Airway ?
Listen to AED	AED orders Shock #2
CPR 2 Min.	Epinephrine 1 mg IV ?
Listen to AED	AED orders Shock #3
CPR 2 Min.	EMS Has Arrived !