**SAEMS**

***Dead on Scene***

***Standing Order***

**Self-Learning Packet**

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**PURPOSE**

The purpose of this document is to serve as an instructional adjunct for the EMS provider in the Southeast Arizona EMS (SAEMS) Region to use to familiarize themselves with the SAEMS Dead on Scene Standing Order. The content of the Training Module has been reviewed by the Protocol Development and Review Sub-Committee, and includes the specific standing order, resource and reference material, and instructions for completing the Training Module to obtain continuing education credit. One hour of SAEMS continuing education credit may be issued following successful completion of the module.

**OBJECTIVES**

Upon Completion of this learning module, the participant will be able to:

1. Identify patients who meet the inclusion and exclusion criteria for the Dead on Scene Standing Order
2. Identify Conditions not compatible with life
3. Identify appropriate times to withdraw or withhold care in the field of patients suffering from penetrating trauma, blunt trauma, and non-traumatic cardiac arrest
4. Identify the components of a valid Do Not Resuscitate (DNR) document
5. Apply the Dead on Scene Standing Order

**INSTRUCTIONS:**

Please read the accompanying information, review the Standing Order and any additional reference material as necessary. Complete the Post Test and return it to your Base Hospital Office. One (1) hour of Continuing Education will be provided upon completion of the Self Learning Packet and Post Test.

**OVERVIEW**

EMS personnel respond to victims of cardiopulmonary arrest in a variety of situations. The following document is intended to assist the EMS Provider in determining how and when resuscitative measures should be withheld, initiated, and/or terminated. Please refer to appropriate related treatment algorithms for other specific treatment information. In certain situations, it is appropriate to withhold resuscitative efforts, and On-Line Medical Direction is not required if the appropriate criteria are met. It is the responsibility of the EMS Provider to be familiar with and appropriately follow the SAEMS Region Standing Orders.

It is important to understand the purpose of medical interventions and recognize whether or not interventions are futile. According to The American Heart Association (2000), “the 2 major determinants of medical futility are *length of life* and *quality of life*. An intervention that cannot establish any increase in length or quality of life is futile. In resuscitation a qualitative definition of futility must include low chance of survival and low quality of life afterward. Key factors are the underlying disease before cardiac arrest and expected state of health after resuscitation. The term *qualitative futility* implies the possibility of hidden value judgments. The correlation between quality-of-life evaluations by physicians and survivors can be poor.”

A provider must quickly be able to identify whether or not interventions will address length of life or quality of life, and this can be a difficult balance to identify. CPR can be deemed inappropriate when it is assumed that it will not impact survivability, or if the patient is expected to survive without the ability to communicate. There are also legal, cultural, or personal perspectives that complicate the issue of futility as well (AHA, 2000). The provider must exhibit cultural competence because the inability of a patient to communicate holds different meanings in different cultures.

**EXCLUSION CRITERIA**

Patients in which the Dead on Scene/Do Not Resuscitate Standing Order may not be used are those who are hypothermic, have suffered a lightning strike, and submersion patients. In these situations, resuscitative efforts must be undertaken, and On-Line Medical Control should be utilized.

 ***Hypothermia***- According to the American Heart Association (AHA)(2005), severe accidental hypothermia (defined as body temperature < 30°C (86°F) can result in significant depression of physiologic functions, including reduced cerebral blood flow, oxygen requirements, cardiac output, and decreased arterial pressure. Because of the severe depressive effects of hypothermia, victims can appear to be clinically dead, but patients who appear dead after prolonged exposure to cold temperatures should not be considered dead until they are warmed to near normal core temperature.  Due to the depressed cardiovascular and respiratory functions, peripheral pulses and respiratory efforts may be difficult to detect. Lifesaving procedures should be initiated even when the clinical appearance indicates the patient may be dead. However, pharmacological interventions should be spaced farther apart, and defibrillation attempts may need to be spread farther apart or be delayed until the body core temperature increases to 30°C to 32°C (Fudge, 2016). In victims of cardiac arrest, hypothermia may actually serve to protect the brain and organs if the hypothermia develops rapidly. Because of this neuro-protective effect, it is possible to see an intact neurologic recovery after hypothermic cardiac arrest (AHA, 2005).

 ***Lightning Strikes-*** Lightning strikes in humans are an uncommon but potentially devastating cause of injury. Generally, resuscitation should be attempted on all lightning victims who appear lifeless because extraordinary recoveries even after prolonged resuscitation have been observed (Pfortmueller et al, 2012). After a lightning strike, the entire myocardium is depolarized resulting in a forced, sustained contraction of the heart. This may cause several deleterious effects on the myocardium including cell necrosis, heart enzyme elevation, T-inversion, and QT prolongation. (AHA, 2005). Lightning strikes may also cause myocardial damage, pericardial effusion, conduction disturbances, and dysrhythmias. Cardiac dysfunction, including severe biventricular failure, is often reversible (Pfortmueller et al, 2012). However, resuscitative attempts of lightning strike victims may have higher success when compared with those that have suffered a cardiac arrest from other causes, even when the interval before the resuscitative attempt is prolonged. Therefore, for victims in cardiac arrest, treatment should be early, aggressive, and persistent regardless of the initial cardiovascular status because patients who respond to early treatment have a high chance of survival (AHA, 2005).

 ***Submersion-*** Often times, patients presenting in cardiac arrest after a period of submersion are also hypothermic. Immediate resuscitative efforts should be initiated for submersion victims, implementing the same treatment guidelines as for hypothermic patients (Friber & Rundgren, 2009; AHA, 2005).

**INCLUSION CRITERIA**

The application of the SAEMS Dead on Scene Standing Order should be used on all patients who are identified as pulseless, meet the following conditions as described in this document, and do not meet the exclusion criteria. Assessment of the pulse should be done for 60 seconds. When assessing a pulse on adults and children, assess the carotid artery. The brachial artery should be assessed on infants. As discussed previously, it is important to identify situations in which medical interventions are assumed to be *futile.*

***Conditions Incompatible with Life:***

According to Millin et al (2013), evidence-based protocols should be set in place to guide EMS providers, in the setting of traumatic code arrests, to withhold or terminate resuscitation efforts. The use of such protocols helps to ensure the safety of EMS crews as well as the public due to a decrease in unnecessary traffic hazards while driving with lights and sirens. Furthermore, these protocols should be developed based on the clinical presentation of no obvious signs of life or injuries incompatible with life, prolonged arrest, and lack of an organized electrocardiographic rhythm. The termination of resuscitative efforts is indicated when signs of life are absent and, despite interventions from EMS crews, there is no spontaneous return of circulation (ROSC). In fact, studies have shown that the effectiveness of CPR is greatly reduced when performed in a moving ambulance (Russi, Kolb, & Myers, 2011). It is important to understand that the decision to withhold or terminate resuscitation efforts is rooted in the risk: benefit ratio of the resuscitative efforts and the statistical expectancy of a patient survival with a positive outcome. For example, the survival rates of a traumatic cardiopulmonary arrest average only 2% (Millin et al, 2013). Examples of obvious injuries incompatible with life include decapitation, decomposed, and burned beyond recognition.

 **Decapitated**: Decapitation is the complete separation of the [head](https://en.wikipedia.org/wiki/Human_head) from the body. This will always result in death because severing the head deprives organs of [neurological](https://en.wikipedia.org/wiki/Autonomic_nervous_system) control that is essential for bodily functions and metabolism due to hypoperfusion of the brain.

 **Decomposed:** The rates of decay and decomposition of a human body can vary depending on certain factors such as the temperature and humidity of the environment, as well as the exposure to certain environmental chemicals such as hydrated lime. Bloating of the body will typically be present two to seven days after death. Much of the decomposition process is internal, and therefore not visible to EMS providers. After the period of bloating, cell decomposition rates accelerate and there is massive decomposition of abdominal organs, resulting in liquefaction of the body’s tissues. Exposure of large portions of skeletal tissue can take up to six months depending on environmental conditions (Galloway et al, 1989).

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| **Estimated Phases of Decomposition** |
| **Time** | **Process** |
| 24-72 hours after death | Decomposition of internal organs begins |
| 3-7 days post-mortem | Body begins bloating.  |
| 8-14 days after death | Rapid decomposition of internal abdominal organs and collection of gas within hollow cavities in the body. |
| Several weeks post-mortem | Teeth and nails begin to decompose. |
| 1 month after death | Body starts to liquefy |
| Up to six months post-mortem | Exposure of large portions of skeletal structures |

 **Burned Beyond Recognition:**Despite medical advances in the management of burn injuries, the trend towards therapeutic failure in patients sustaining extensive total body surface area (TBSA) burns remains. Several predictors of survivability exist including a patient’s age, burn size, amount of full-thickness burn, inhalation injury, mechanism of burn, timing and appropriateness of resuscitation, and co-morbid complications (O’Mara, Caushaj, Goldfarb & Slater, 2000). The greater the burn severity, especially once the full thickness burns extend beyond 60%, there is a poorer response to the physiologic to resuscitation efforts.

**Absence of Signs of Life in a Patient with a Signed DNR:**If a valid Prehospital Medical Care Directive is present, the patient still must be assessed. However, if the patient is deemed to have absent signs of life, no resuscitative measures are needed. It is not the intent of a DNR to deny treatment of other medical conditions if there are signs of life present. Furthermore, if patients’ relatives are present and requesting resuscitative efforts, communication should be made to the base hospital if possible. A valid DNR must include the following components: \*\* See end of document for DNR example\*\*

* Must be on Orange Paper
* Must have the patient’s signature, date of birth, sex, race, eye color, and hair color

OR have a recent photo of the patient

* Must have physician’s signature, phone number and date signed
* Must have signature of physician that they explained the document
* Must have date signed and signature of person who witnessed the patient sign

***Non-Traumatic Cardiac Arrest***: In order to implement the Dead on Scene Standing Order, in a non-traumatic cardiac arrest patient, several criteria must be met. In the case of an unwitnessed arrest, there must be an assumption of greater than 30 minute downtime. Neurologic outcomes have been shown to be associated with down times, and as down time increased, neurologic outcomes decreased (Kim et al, 2015). Another criteria that must be met is the absence of a pulse for 60 seconds. Finally, these patients must be placed on a cardiac monitor or an AED and be in PEA or asystole if ALS, or have a non-shockable rhythm on an AED. If there are organized or shockable rhythms on the monitor, survivability and neurologic outcomes increase, and resuscitative efforts should be initiated. Again, all three criteria must be present for unwitnessed non-traumatic cardiac arrest patients in order to follow the Dead on Scene SO.

 In regards to witnessed cardiac arrests, resuscitative efforts should begin immediately following ACLS protocols as appropriate for ALS providers. According to the Sudden Cardiac Arrest Foundation (SCAF)(2014), nearly 1/3 of victims survive when the arrest is witnessed by bystanders. Furthermore, more than 60% of Out of Hospital cardiac arrests are treated by EMS personnel and approximately 25% of these patients present with V-fib or V-Tach. Therefore, efforts should be initiated aggressively when responding to a witnessed cardiac arrest patient. However, often times the presenting heart rhythm is asystole or PEA, both of which are incompatible with life. If these rhythms are refractory to ACLS interventions, the chance of survivability is slim. Therefore, there are certain criteria that must be met in order to withdraw care for patients in witnessed cardiac arrest. First, there must be 20 minutes of resuscitative efforts in which the heart rhythm remains in PEA ***with*** an ETCO2 of <10 or asystole or a non-shockable rhythm on the AED. Most recent ACLS guidelines recommend the use of capnography during cardiac arrest resuscitation. The authors of several studies have discussed the correlation between ETCO2 and predictable return of spontaneous circulation and perfusion and return of spontaneous circulation (ROSC). Specifically, those patients with an ETCO2 greater than (>) 10mm/Hg were more likely to be resuscitated. On the other hand, certain studies showed that no patients with an ETCO2 less than (< )10mm/Hg were successfully resuscitated (Kodali & Urman, 2014). A decreased ETCO2 < 10mm/Hg indicates a lack of life-sustaining perfusion to vital organs and an improbability of ROSC. Therefore, it is prudent to withdraw efforts after 20 minutes of resuscitation efforts if the patient remains in PEA with an ETCO2  < 10mm/Hg ***OR*** the patient remains in asystole or a non-shockable rhythm on the AED.

***Penetrating Trauma & Cardiac Arrest***: The prognosis for traumatic cardiac arrest patients secondary to penetrating trauma is extremely poor, and it is often reasonable to consider resuscitation efforts to be futile and an inappropriate use of resources while increasing the risks to rescuers. The National Association of EMS Physician Standards and Clinical Practice as well as the American College of Surgeons Committee on Trauma (ACSCOT) have published guidelines for withholding or terminating resuscitation efforts in the prehospital traumatic cardiopulmonary arrest scenario (Moriwaka et al, 2010). One of the points made in the paper is “Victims of penetrating trauma found apneic and pulseless by EMS, based on their patient assessment, should be rapidly assessed for the presence of other signs of life, such as pupillary reflexes, spontaneous movement, or organized ECG activity. If any of these signs are present, the patient should have resuscitation performed and be transported to the nearest emergency department or trauma center. If these signs of life are absent, resuscitation efforts may be withheld” (Hopson et al, 2003, p. 106). The authors also recommend that if the patient is in cardiac arrest following a penetrating trauma and transport to a Level I trauma center will be greater than 15 minutes, the arrest may be considered unsalvageable and EMS providers may consider termination of resuscitative efforts. (Hopson et al, 2003). If the provider suspects an airway obstruction or tension pneumothorax, the provider should attempt to place an airway adjunct and perform bilateral needle thoracostomy if in their scope of practice. If the patient remains pulseless and transport is greater than 15 minutes to a Level I trauma center, consider withdrawal of resuscitation efforts.

***Blunt Trauma & Cardiac Arrest***: Despite advances in medical care, the survivability rates of patients suffering cardiac arrest following blunt trauma remains between 0% - 2% for patients arriving at a trauma center with no signs of life (Zwingmann et al, 2012). The incidence of multisystem organ damage is increased in the cases of blunt trauma. Zwingmann et al (2012) also discussed ACSCOT’s recommendations to withhold resuscitation efforts in trauma patients found to be apneic, pulseless and in PEA/asystole, or other signs of life due to the arguably minimal number of salvageable responses in comparison to the extent of required resources. If the provider suspects an airway obstruction or tension pneumothorax, the provider should attempt to place an airway adjunct and perform bilateral needle thoracostomy if in their scope of practice

SPECIAL NOTE:

If there are scene or patient circumstances in which providers, family, or other stakeholders would benefit from transporting a patient unlikely to survive their illness/injury, the treating EMS team can elect to do so in a safe manner. EMS providers may also call for medical direction if unsure whether or not to withhold/withdraw resuscitative efforts based on scene and/or bystander circumstances. If asked for a time of death, please provide the “TIME at which resuscitation was withheld/withdrawn.” In all instances of withdrawing or withholding resuscitative efforts, EMS providers should contact law enforcement and initiate grief support. An EMS provider must remain with the victim until released to law enforcement.

DOCUMENTATION:

 Documentation of patient assessments and all aspects of care leading to the decision to withdraw/withhold care are vital. The documentation of any response serves as the legal clinical record of a provider’s assessment. This will become part of the patient’s medical record and can be reviewed by lawyers should the need arise (Wolfberg & Wirth, 2005). When completing documentation for a call in which the Dead on Scene Standing Order is used, there are several key points to include in the documentation. First, it is important to document the assessment of the patient including any pertinent information related to the history of the present illness/incident (HPI). This may include events leading up to the event, mechanism of injury if applicable, estimated or known down time prior to EMS arrival, and any other pertinent information. It is also important to document the physical assessment of the patient. This includes, but is not limited to, absence of a pulse for greater than 60 seconds, EKG interpretation of PEA or asystole in three leads, other signs indicating the absence of life such as pupillary response, and skin condition (rigor mortis, decomposition etc…). The provider should attach a hard copy of the ECG strip to the chart demonstrating asystole in 3 leads if available. If a provider has initiated resuscitation efforts, it is vital to document the interventions provided, as well as the patient’s response to the each of those interventions. Documenting the amount of time spent attempting resuscitation is also important based on the SAEMS Dead on Scene criteria for withdrawal of care.

 Once the decision to terminate or withdraw care, the scene must be turned over to law enforcement. Please document the law enforcement representative’s name, badge number, and agency that assumes responsibility for the scene. If withholding care due to the presence of a valid DNR, ensure the documentation of presence of a valid DNR on scene. Again, the documentation serves as a legal record of the provider’s role and treatment of a patient. Legally, documenting patient conditions, resuscitation efforts and the patient’s response to those efforts, and justification for the withdrawal or withholding of care will serve to help protect the EMS provider if the need arises.





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Dead on Scene Post Test

**NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ AGENCY: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. The Dead On Scene Standing Order should not be used on which of the following patients:

a) A patient that was burned beyond recognition

b) A 15-year-old hospice patient with a valid Prehospital Medical Directive (orange form)

c) A patient in PEA after being struck by lightning

d) A decapitated patient

2. On an adult patient, what pulse must you check for and document an absence of for 60 seconds:

a) The femoral pulse

b) The brachial pulse

c) The carotid pulse

d) The radial pulse

3. You should not use the Standing Order on which of the following patients:

a) A 73-year-old male cool to touch and mottled with rigor and lividity, last seen 12 hours previously

b) A 13 year old female pulseless and apneic after ejection from MVC

c) A 96-year-old female in hospice with a valid Prehospital Medical Directive (Orange Form)

d) A patient that is cool to the touch secondary to being submerged in an unheated pool in the middle of winter

4. When treating a witnessed non-traumatic cardiac arrest patient, when can you use the Dead on Scene Standing Order to withdraw care?

a) If the trauma center is greater than 15 minutes away

b) When the patient remains in V-Tach after three rounds of medications

c) After 20 minutes of resuscitation and the patient remains in PEA or asystole with an ETCO2 < 10mm/Hg or a non-shockable rhythm on an AED

d) After two attempts of a needle thoracostomy with no response

5. What cardiac rhythm must be documented in 3 leads if equipped?

a) Fine v-fib

b) Bradycardia

c) Asystole

d) V-tach

6. It is never appropriate to initiate resuscitation efforts if a patient has a signed DNR:

a) True

b) False

7. You arrive on scene to find that your patient meets all the criteria of the Dead On Scene Standing Order. What is the next action you should take?

a) Have the family call the funeral home to begin making arrangements

b) Leave the scene because there is nothing more you can do

c) Call law enforcement and secure the scene

d) Transport the patient to the hospital to be pronounced by an ED physician

8. You should attach a hard copy of which of the following to your documentation if available?

a) The ECG strip of asystole in all 3 leads

b) A copy of the valid Prehospital Medical Directive (Orange Form)

c) A list of the patient’s medications

d) A list of the family members to be contacted

9. You should remain on scene until which of the following arrive?

a) Law enforcement

b) The coroner

c) The Donor Network

d) CSI

10. Your patient does not meet all inclusion criteria. What should be your next action?

a) Initiate BCLS and ACLS procedures and contact Medical Direction

b) Wait until the patients does meet all inclusion criteria the use the standing order

c) Do not touch the patient and wait for law enforcement to arrive

d) Ask the family what they want you to do

11. Who may use the Standing Order?

a) An ALS unit

b) A BLS unit

c) Both of the above

d) Neither of the above