



State of Tennessee Board of Emergency Medical Services
For EMS Medical Direction
APPROVED CLINICAL PRACTICES

THIS DOCUMENT AS A RESULT OF REVIEW AND RECOMMENDATION FROM THE CLINICAL ISSUES COMMITTEE CONTAINS INFORMATION FOR CLARIFICATION OF CURRENT CLINICAL PRACTICES AS WELL AS NEW CLINICAL PRACTICES APPROVED FOR EMS PERSONNEL BY THE BOARD OF EMERGENCY MEDICAL SERVICES.

ANY PRODUCT THAT HAS FDA APPROVAL FOR PREHOSPITAL USE, LOCAL MEDICAL DIRECTION APPROVAL AND FALLS WITHIN THE SCOPE OF PRACTICE FOR THE PROVIDER DOES NOT REQUIRE EMS BOARD APPROVAL

The Clinical Issues committee encourages EMS providers to submit their questions, concerns, performance data, and recommendations for improvement to the Clinical Issues Committee.

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**CONTINUOUS POSITIVE AIRWAY PRESSURE
BILEVEL POSITIVE AIRWAY PRESSURE**

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board Of Emergency Medical Services.

Procedure/Drug Name w/brief description:

CPAP (Continuous Positive Airway Pressure)
BIPAP (Bilevel Positive Airway Pressure)

Positive airway pressure devices are used in treatment of patients in severe respiratory distress from a variety of causes. These devices generate pressure to help force fluid out of the lungs and improve airflow.

Need:

CPAP/BIPAP is a non - invasive treatment method which reduces the need for intubation and mechanical ventilation in seriously ill patients.

Recommended staff/skill level:

The use of pre-hospital CPAP/BIPAP is recommended at the level of AEMT/EMT-IV and above after documentation of training and education.

Training/Education Needed:

Training and Education regarding CPAP/BIPAP may occur at the EMS service level using the manufacturers training program. Individual providers must be credentialed in the use of this device through documentation of training.

Quality Improvement Parameters:

EMS services should carefully monitor patient selection for appropriate use of the device, patient outcomes, complications, and for technical problems with the device. EMS services should more diligently monitor the use of this device by AEMT/EMT-IV's until more clinical evidence is available.

Scope of Recommendation:

This recommendation applies to the pre-hospital use of Positive Airway Pressure Devices.



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HOME VENTILATOR TRANSPORTS

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board of Emergency Medical Services.

Practice w/brief description

HOME VENTILATOR TRANSPORTS

Patients with ventilators which are managed by family or other caregivers must be transported by a paramedic or above. The transporting medic (or above) must ensure the caregiver responsible for the ventilator is present in the vehicle, capable and comfortable in their ability to manage the ventilator, and its complications during transport.

Recommended staff/skill level:

A paramedic or above may transport patients on home managed ventilators provided the caregiver is capable, present in the vehicle, and comfortable with their ability to manage the ventilator and its complications during transport. If no capable caregiver is available, the transporting paramedic must have successfully completed the EMS Board approved inter-facility ventilator transport curriculum or be licensed as a Critical Care Paramedic and meets the annual in-service hour requirements.

Training/Education Needed:

Training and Education regarding patient caregiver managed ventilators may occur at the EMS service level using the EMS Board approved curriculum requirements to include approved faculty. Ventilator Training Programs must be approved by the EMS Division prior to first training course

Quality Improvement Parameters

EMS services must carefully monitor to include Medical Director's review of mechanical ventilator transports, patient outcome, complications and technical problems. Paramedics transporting such patients can care for the airway, and should have knowledge of the issues associated with ventilator transport. A capable caregiver responsible for the management of the ventilator must be present in the ambulance during patient transport.

Scope of Recommendation:

This recommendation applies to the Paramedic and above.



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INTER-FACILITY MECHANICAL VENTILATOR TRANSPORT PRACTICE

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board Of Emergency Medical Services.

Practice w/brief description

VENTILATOR TRANSPORTS

To safely and legally conduct inter-facility ground transports of ventilator dependent patients, an ambulance service MUST fulfill requirements of the Emergency Medical Services Board:

1. Properly qualified Ventilator trained or Critical Care Paramedic or Respiratory Therapist
2. A Transport ventilator

Transport ventilators must meet the following minimum features:

1. Variable tidal volume (for example, 100-1500 ml)
2. Variable ventilator rate (2-30 breaths/min)
3. Variable minute ventilation (4-20 L/min)
4. Intermittent mandatory ventilation (IMV) and controlled mechanical ventilation (CMV)
5. Low and high pressure alarms
6. Continuous positive airway pressure (I-20 cm H2O)
7. Spontaneous patient ventilation (cycling on patient demand).
8. Pressure control

Recommended staff/skill level:

A paramedic who has successfully completed the EMS Board approved inter-facility ventilator transport curriculum or licensed as a Critical Care Paramedic and meets the annual in-service hour requirements

or

A licensed Paramedic and respiratory therapist as the transport team.

Training/Education Needed:

Training and Education regarding transport ventilators may occur at the EMS service level using the EMS Board approved curriculum requirements to include approved faculty. Ventilator Training Programs must be approved by the EMS Division prior to first training course. Ventilator Training Approval Course Request, to include a course schedule, must be submitted



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to the regional consultant prior to course starting to receive a course approval number. Paramedics trained in Transport Ventilator Course or Critical Care Paramedics must be credentialed in the use of the transport ventilator thorough documentation of four hours of training and competency annually on the use of the transport ventilator used by the service.

Quality Improvement Parameters

EMS services must carefully monitor to include Medical Director's review of mechanical ventilator transports, patient outcome, complications and technical problems. Each Ventilator Trained Paramedic and Critical Care Paramedic is required to re-credential annually. Re-credentialing will require two (2) hours of continuing education every six months for a total of four (4) hours per calendar year.

Two (2) hours of continuing education per calendar year can be replaced by completing at least six (6) mechanical transports in the previous 6 month period with no issues found in a quality improvement review and signed off by EMS Service Medical Director

Documentation of training and a competency for re-credentialing, for either two (2) hours if using the previous, or four (4) hours annually will be reviewed signed by Medical Director.

Ventilator Trained Paramedic and Critical Care Paramedics must have documentation of credentialing signed by Medical Director to perform mechanical ventilator transports.

Documentation should include the use of EndTidal CO₂ and Pulse Oximetry monitoring, as well as confirmation the patient was observed for ten minutes at bedside on the transporting ventilator to ensure patient stability.

Scope of Recommendation:

This recommendation applies to the Ventilator Trained Paramedics and Critical Care Paramedics qualified through training in the use of Transport Ventilators.



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NON TRACHEAL AIRWAY DEVICES

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Procedure/Drug Name w/brief description

Non Tracheal Airway Devices

There are multiple non tracheal blind insertion airway devices (eg. King LT, Combitube, SALT,LMA) which can be utilized as an emergency and/ or backup airway management device. The devices come in various sizes for pediatric to adult patients.

Need

Non Tracheal airway devices provide an emergency rescue airway device and are approved for use in adults and pediatrics.

Recommended staff/skill level

Non Tracheal airway devices are for use by EMR and above.

Training/Education Needed

Training and Education regarding Non tracheal airway devices for EMR and EMT will occur at the EMS service level. EMS Agency's Medical Director, who has authorized the use of non-tracheal airway devices by EMRs and EMTs, must show documentation of education and competency of the EMR and EMT in the use these devices.

Quality Improvement Parameters

EMS services should carefully monitor of use of the non-tracheal airway device by the EMR and EMTs. Services should also carefully review patient care reports to ensure compliance with local protocol and adherence to scope of practice.

Scope of Recommendation

This recommendation applies to the pre-hospital use of non-tracheal airway devices (including Combitube, King LT, and LMA) by EMR and EMTs in the pre-hospital setting as an emergency and/or backup airway management device in adult and pediatric patients. These devices are included in scope of practice and training for AEMT/EMTIV and above levels. EMS services should carefully monitor patient ventilator transports for appropriate use of the transport ventilator, patient outcomes, complications, and for technical problems with the device.



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RAPID SEQUENCE INTUBATION / DRUG ASSISTED INTUBATION (RSI/DAI)

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board Of Emergency Medical Services.

Procedure/Drug Name w/brief description

The use of medications in the facilitation of obtaining or maintaining airway control is often required in severely injured patients in the pre-hospital setting. The use of these medications can lead to Neuromuscular blockade rendering the patient unable to breathe on their own, and therefore require significant training and oversight to be done in a safe manner.

Need

Rapid Sequence Intubation / Drug Assisted Intubation may be required in severely ill patients in order to facilitate the management of the airway.

Recommended staff/skill level

The use of RSI / DAI is recommended at the Paramedic skill level and above ONLY and after documentation of Medical Director's approval of protocol, training, education, and continuing proof of competence.

Training/Education Needed

Training and education regarding RSI / DAI must occur at the EMS service level. Individual providers must be credentialed in the use of this procedure with thorough documentation of training. In addition, continuous reevaluation of skills and knowledge is required every six months, as is documentation of competency.

Quality Improvement Parameters

EMS services must carefully monitor to include Medical Director's review of each use of Rapid Sequence Intubation / Drug Assisted Intubation for appropriate setting, patient outcome, complications and technical problems. Each Paramedic re-credentialed every six months.

- This may be done by performing at least one RSI/DAI procedure every six months with no issues found in a quality improvement review and signed off by EMS Service Medical Director.
- or
- Documentation of training and a competency for re-credentialing, review signed by Medical Director if the paramedic has not utilized the technique in the field in the preceding six months.

Paramedics must have documentation of credentialing signed by Medical Director to perform RSI/DAI for each service in which they perform RSI/DAI.

Scope of Recommendation

This recommendation applies to the Pre Hospital use of Rapid Sequence Intubation / Drug Assisted Intubation.



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**Suctioning of Stoma or Obstruction in Airway
Sterile Deep Suction**

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board Of Emergency Medical Services.

Procedure/Drug Name w/brief description

Suctioning of Stoma or Obstruction in Airway

Need

Patient need of immediate care of suctioning a Stoma or an obstruction of airway

Recommended staff/skill level

Stoma and Obstruction in airway suction may be performed by EMTs and above. Sterile Deep Suction of a patient should be done only by a Paramedic.

Training/Education Needed

Training and Education regarding Suction is in National Education Standards at EMT and above initial training. EMS Agency's Medical Director, who has authorized the use of this procedure by EMT, AEMTs and/or Paramedics, must show documentation of competency of these suction techniques and devices.

Quality Improvement Parameters

EMS services should carefully monitor of use Suction of a Stoma or Obstructed airway by the EMT, AEMT, and/or Paramedic as well as Sterile Deep Suction for the Paramedic and above. Services should also carefully review patient care reports to ensure compliance with local protocol and adherence to EMT IV and/or Paramedic scope of practice.

Scope of Recommendation

This recommendation applies to the pre-hospital use of suction devices for Stoma and Obstruction in airway by EMTs and above as well as Sterile Deep Suction by Paramedics or above in the pre-hospital setting in adult and pediatric patients.



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VIDEO LARYNGOSCOPY

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board Of Emergency Medical Services.

Procedure/Drug Name w/brief description

Video Laryngoscopy

Video laryngoscopy is a device that allows the paramedic to view the airway fully in order to ease intubation.

Need

Video laryngoscopy allows the paramedic to view an airway for difficulties in intubation where they would otherwise be unable, and may help eliminate the use of blind airway devices.

Recommended staff/skill level

Video Laryngoscopy is for use by Paramedics only.

Training/Education Needed

Training and Education regarding Video Laryngoscopy will occur at the EMS service level. EMS Agency's Medical Director, who has authorized the use of Video laryngoscopy by Paramedics, must show documentation of education and competency of the Paramedics in the use of the video laryngoscopy device.

Quality Improvement Parameters

EMS services should carefully monitor of use of the Video Laryngoscopy by the Paramedic. Services should also carefully review patient care reports to ensure compliance with local protocol and adherence to Paramedic scope of practice.

Scope of Recommendation

This recommendation applies to the pre-hospital use of Video Laryngoscopy by Paramedics in the pre-hospital setting as an emergency aid in intubation of adult and pediatric patients.



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ADMINISTRATION OF EPINEPHRINE BY EMT

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board of Emergency Medical Services.

Procedure/Drug Name w/brief description

Use of Epinephrine by EMT

Epinephrine is used for the treatment of patients exhibiting symptoms of anaphylaxis. Epinephrine has been within scope of practice for EMTs, but only when administered in a dose controlled administration device. Logistical and economic issues have impacted this practice, and this practice will provide alternative methods for delivery of the medication.

Recommended staff/skill level

Use of epinephrine from multidose containers is appropriate at the EMT and above level.

Training/Education Needed

Training and Education regarding epinephrine from multidose containers will occur at the EMS service level. The EMS Agency's Medical Director, who has authorized the use of epinephrine by EMTs must show documentation of education and competency of each individual provider and the implementation of a written protocol covering the use of the device.

Quality Improvement Parameters

EMS services should carefully monitor the results and use of epinephrine by EMTs. Services should also carefully review patient care reports to ensure compliance with local protocol.

Scope of Recommendation

This recommendation applies to the pre-hospital use of epinephrine from multidose containers by EMT or above.



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ADMINISTRATION OF GLUCAGON BY AN EMTIV

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board Of Emergency Medical Services.

Procedure/Drug Name w/brief description:

Glucagon (by EMT-IV)

Glucagon is used for the treatment of Hypoglycemia in patients in which IV access is not obtainable. The drug is given intramuscularly (IM) or intranasal (IN) as a temporary means of elevating blood sugar.

Need:

Expanding the use of this drug to EMT-IVs may decrease delays in patient treatment due to lack of immediate availability of a paramedic.

Recommended staff/skill level:

The use of Glucagon is recommended for use at the level of EMT-IV and above.

Training/Education Needed:

Training and Education regarding Glucagon may occur at the EMS service level using a manufacturer's training program. Individual providers must be credentialed in the use of this device through documentation of training.

Quality Improvement Parameters:

EMS services should carefully monitor use of this drug, patient outcomes, and complications. EMS services should more diligently monitor the use of this drug by EMT-IV's until more clinical evidence is available.

Scope of Recommendation:

This recommendation applies to the pre-hospital use of Glucagon by EMT-IV's.



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ADMINISTRATION OF ZOFTRAN (ONDANSETRON)

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board Of Emergency Medical Services.

Procedure/Drug Name w/brief description:

Zofran (Ondansetron)
Ondansetron is used for control of nausea and vomiting.

Need:

Provide an alternative to Promethazine for the pre-hospital control of nausea and vomiting.

Recommended staff/skill level:

This medication is recommended for Paramedics only.

Training/Education Needed:

Training and Education regarding Ondansetron may be provided at the EMS service level.

Quality Improvement Parameters:

EMS services should carefully monitor use of the drug.

Scope of Recommendation:

This recommendation applies to the pre-hospital use of Odansetron.



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AEMT/EMT-IV ATTENDANT FOR PATIENTS RECEIVING IV ANTIBIOTICS

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board Of Emergency Medical Services.

Procedure/Drug Name w/brief description

EMT-IV Attendant for Patients Receiving IV Antibiotics

This procedure will allow AEMT/EMT-IV and above pre-hospital providers to accompany patients with the drug class of IV antibiotics infusing. i.e.: Penicillin, Ampicillin, Nafcillin, etc. Patients should have previous exposure to this medication, not a new administration. In addition these medications should be delivered via IV Pump only.

Need

Convalescent patients often have IV antibiotics being administered via infusion when being transferred from one facility to another for admission of medical tests.

Recommended staff/skill level

Attendant for Patients Receiving IV Antibiotics is for AEMT/ EMT IV and above.

Training/Education Needed

The AEMT/ EMT-IV are trained to recognize anaphylaxis and treat by administering Epi 1/1000. Those guidelines would be reviewed with emphasis on probable side effects of antibiotics. Training should include how to stop the infusion via pump.

Quality Improvement Parameters

EMS services should identify all transports of patients receiving IV antibiotics by AEMT/EMT-IV (and above). The EMS Service's Medical Director should review PCRs of those transports. If there are no risks identified, further reviews would be performed per standard QI parameters. If risks are identified, immediate retraining and additional observation should be continued.

Scope of Recommendation

This recommendation applies to AEMT/EMT-IV attendants for patients receiving IV antibiotics. This would apply all medications that fall under the class of "IV Antibiotics"



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IV Antibiotics to include:

Amkiacin	Ceftriaxone	Linezolid
Amophotericin B Lipid Complex	Clindamycin	Meropenem
Ampicillin	Daptomycin	Metronidazole
Ampicillin-Subactam	Doripenem	Micafungin
Azithromycin	Doxycycline	Nafcilin
Aztreonam	Ertapenem	Penicillin G Potassium
Cefazolin	Fluconazole	Piperacilin-Tazobactam
Cefepime	Foscarnet	Rifampin
Cefatoxime	Ganciclovir	Tigecycline
Cefoxitin	Gentamicin	Tobramycin
Ceftazidime	Impinem	Vancomycin
	Levofloxacin	Voriconazole



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Initiation of Blood Products

The following procedure and/ or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board of Medical Laboratories and the Board of Emergency Medical Services.

Practice w/brief description

To safely and legally conduct inter-facility transports of patients that may need the initiation of blood products during transport.

There must be an agreement with the EMS Services and transferring hospital blood bank that is reviewed and approved by the director of the blood bank that governs the procurement, transfer, and temperature monitoring during transport between facilities.

Recommended staff/skill level

Initiation of blood products for transfusion is a Critical Care Paramedic only skill.

Procedure/Drug Name w/brief description

The initiation of blood products during EMS inter-facility transport requires:

- Blood product Unit number and type for the patient being transferred will be verified and documented by the transferring nurse with the receiving Critical Care Paramedic prior to transfer.
- Blood product temperature maintained between 1-6C°/ 34-43F° during transport.
- Blood product will be stored in a shipping container appropriate for blood transport.
- Temperature of the blood product will be recorded along with the unit number(s) and type before transporting and temperature will be recorded at a minimum every 4 hours thereafter.

EMS Service will established policies and protocols on the initiation of blood products during inter- facility transports to include how blood temperature will be maintained and transported.

Training/Education Needed

Training and Education regarding blood product transfusion initiation will occur at the EMS service level for Critical Care Paramedics. Training will include but not limited to the initiation and administration of blood products transfusions and review of adverse reactions and treatment for such and transportation and temperature monitoring of blood products. The EMS Services with maintain documentation of training and demonstrated competencies annually on initiation and administration to include review of adverse reactions and treatment for such and transportation and temperature monitoring of blood products

Quality Improvement Parameters

EMS services should identify and carefully monitor all transports of patients receiving blood product transfusions. The EMS Service's Medical Director should review PCRs of those transports to ensure compliance with local protocol and adherence to the Critical Care Paramedic scope of practice. If risks are identified, immediate retraining and additional observation should be continued.



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Scope of Recommendation

This recommendation applies to the initiation of blood products for transfusion by Critical Care Paramedics in the pre-hospital during inter-facility transports.



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INTRANASAL MEDICATION ADMINISTRATION

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board Of Emergency Medical Services

Procedure/Drug Name w/brief description
Intranasal Medication Administration

Intranasal routes of drug administration provide an alternative to needle based dosing. Use of intranasal dosing is often quicker and safer for both the patient and EMS Personnel. Intranasal routes medications are equally effective to other routes of administration and are no longer cost prohibited.

Need

Intranasal Medication can be utilized when IV or IM access is difficult or dangerous. Combative diabetic patients, actively seizing patients, and those with narcotic overdose provide multiple opportunities for injury to the patient or the pre-hospital provider.

Recommended staff/skill level

Intranasal Routes of administration for medications are appropriate at the AEMT/EMTIV and Paramedic levels per protocol or standing order.

Education Needed

Education regarding intranasal medication administration will occur at the EMS service level. EMS Agency's Medical Director, who has authorized the use of intranasal medication administration, must show documentation of education and competency of the EMS Personnel authorized by the service protocols in intranasal medication administration.

Quality Improvement Parameters

EMS Services should carefully monitor the use of Intranasal Medications for appropriate use, technique, and complications.

Scope of Recommendation

This recommendation applies to the pre-hospital use of Intranasal Medications by Paramedics and AEMT/EMT IVs authorized by service protocols.



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INTRANASAL USE OF NALOXONE BY AN EMR and EMT

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board Of Emergency Medical Services.

Procedure/Drug Name w/brief description

Intranasal Use of Naloxone

This procedure will allow Emergency Medical Responders (EMR) and Emergency Medical Technician (EMT) to administer intranasal naloxone for the treatment of respiratory compromise in opiate overdose.

Need

Life threatening respiratory depression can occur with use of opioid medications. Intervention at the earliest possible time is vital if lives are to be saved.

Recommended staff/skill level

Intranasal Routes of administration of naloxone is appropriate for EMR and EMT.

Training/Education Needed

Training in recognition of opiate effects, administration of naloxone, expected responses, and additional care needed in life threatening events should be performed at the EMS service level and documented for each responder.

Quality Improvement Parameters

EMS services should identify all patients receiving naloxone by EMS. The EMS Service's Medical Director should review PCRs of those transports. If there are no risks identified, further reviews would be performed per standard Qi parameters. If risks are identified, immediate retraining and additional observation should be continued.

Scope of Recommendation

This recommendation applies to EMR and EMT. This procedure is currently in the approved scope of practice for AEMT and Paramedic.



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PATIENT CONTROLLED DEVICES

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board Of Emergency Medical Services.

Procedure/Drug Name w/brief description

Patient Controlled Devices

Patient Controlled Devices provide ongoing medication administration to patients. These devices are usually programmable by the prescriber. If it is programmed and functioning as intended, the machine is unlikely to deliver an overdose of medication. These devices may be patient adjustable.

Need

Patients with PCDs often require transport by EMS.

Recommended staff/skill level

Transport of Patients with PCDs is approved for EMT, AEMT/EMT-IV, and Paramedics.

Training/Education Needed

Training and Education regarding PCDs will occur at the EMS service level. EMS should show documentation of education and competency.

Quality Improvement Parameters

EMS services should carefully monitor the transport of use of patients with PCDs. Services should also carefully review patient care reports to ensure compliance with local protocol and adherence to EMT, AEMT/EMT IV, and/or Paramedic scope of practice.

Scope of Recommendation

This recommendation applies to the pre-hospital transport of patients with Patient Controlled Devices.



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USE OF D10 IN EVENT OF D50/D25 SHORTAGE

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board of Emergency Medical Services.

Procedure/Drug Name w/brief description

Substitution of D10 in the event of D50/D25 shortage

Need

Current drug shortages include D50/D25, this will provide an alternative.

Recommended staff/skill level

N/A

Training/Education Needed

Training and Education regarding substitution of D10 may occur at the EMS service level for those authorized by scope of practice and Medical Direction. Individual providers should possess documentation of training. Suggested protocol update:

For patients in need of D50 or D25, you may substitute 250 cc D10 value which is the equivalent of 1 amp of D50. It is recommended that you give in approximately 100cc boluses, and assess the patient for resolution of symptoms and recheck blood glucose levels.

Quality Improvement Parameters

EMS services should carefully monitor cases requiring any drug substitution including D10 (250 cc D10 value). Services should also carefully review patient care reports to ensure compliance with local protocol and adherence to the scope of practice.

Scope of Recommendation

This recommendation applies to the emergency substitution of D10 in the pre-hospital setting in pediatric and adult patients.



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EMT Use of Glucometer

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board of Emergency Medical Services.

Procedure/Drug Name w/brief description

Use of Glucometers by EMT

Glucometers are used for the evaluation of patients exhibiting symptoms of altered blood sugar. These devices are used by patients routinely, and can provide valuable clinical knowledge that may affect patient care.

Need

Assessment of patients who may be experiencing symptoms of altered blood sugar should include serum glucose levels.

Recommended staff/skill level

Use of glucometers to determine blood glucose level is appropriate at the EMT and above level.

Training/Education Needed

Training and Education regarding glucometers will occur at the EMS service level. The EMS Agency's Medical Director, who has authorized the use of glucometer by EMT must show documentation of education and competency of the each individual provider and the implementation of a written protocol covering the use of the device.

Quality Improvement Parameters

EMS services should carefully monitor the results and use of glucometers obtained by EMT and above. Services should also carefully review patient care reports to ensure compliance with local protocol.

Scope of Recommendation

This recommendation applies to the pre-hospital use of glucometers by EMT or above.



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**ACCESSING INDWELLING SUBCUTANEOUS INTRAVENOUS ACCESS PORTS
WHEN ALL OTHER ATTEMPTS TO OBTAIN INTRAVENOUS ACCESS HAVE
FAILED**

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board Of Emergency Medical Services.

Procedure/Drug Name w/brief description

Accessing Indwelling Subcutaneous Intravenous Access Ports When All Other Attempts to Obtain Intravenous Access Have Failed

Many patients who have significant problems with intravenous access have received implanted subcutaneous intravenous access ports such as the "Port-A-Cath". The use of specialized needles (Huber) when accessing these devices will provide Paramedics a means of obtaining IV access when all other access attempts have failed.

Need

The ability to obtain intravenous access is a vital skill for the Paramedic. Subcutaneous Implanted Intravenous Access Ports may provide the only intravascular access available in certain patients when all other access attempts have failed. Specialized needles such as the Huber needle are required to properly access these ports.

Recommended staff/skill level

Accessing Indwelling Subcutaneous Intravenous Access Ports is a skill appropriate for the Paramedic service level only.

Training/Education Needed

Training and Education regarding access of subcutaneous access ports will occur at the EMS service level. EMS Agency's Medical Director who has authorized the access of subcutaneous access ports by Paramedics as a last resort for gaining IV access, must show documentation of education and competency of the paramedic in accessing subcutaneous access ports.

Quality Improvement Parameters

EMS services should carefully monitor the indications and complications of accessing indwelling subcutaneous intravenous access ports by a Paramedic. Services should also carefully review patient care reports to ensure compliance with local protocol and adherence to Paramedic scope of practice.

Scope of Recommendation

This recommendation applies to the pre-hospital access of Subcutaneous IV access ports by Paramedics in the pre-hospital setting when all other IV access sites have failed.



State of Tennessee Board of Emergency Medical Services
For EMS Medical Direction

APPROVED CLINICAL PRACTICES

**ACCESSING EXTERNAL JUGULAR SCALP VEINS IN CHILDREN
WHEN ALL OTHER ATTEMPTS TO OBTAIN INTRAVENOUS ACCESS HAVE
FAILED**

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board of Emergency Medical Services.

Procedure/Drug Name w/brief description

Accessing External Jugular and Scalp Veins in Children When All Other Attempts to Obtain Intravenous Access Have Failed

Patients who have significant problems need intravenous access and will need peripheral vein access. Accessing External Jugular veins on all patients and scalp veins on pediatric patients will give Paramedics a means of obtaining IV access when all other access attempts have failed.

Need

The ability to obtain intravenous access is a vital skill for the Paramedic. Access of the External Jugular or scalp veins in pediatric patients may provide the only intravascular access available in certain patients when all other access attempts have failed

Recommended staff/skill level

Accessing External Jugular and scalp veins is a skill appropriate for the Paramedic service level only.

Training/Education Needed

Training and Education regarding access of external jugular and scalp veins will occur at the EMS service level. EMS Agency's Medical Director, who has authorized the access of these veins by Paramedics as a last resort for gaining IV access, must show documentation of education and competency of the paramedic in accessing Scalp and External Jugular veins.

Quality Improvement Parameters

EMS services should carefully monitor the indications and complications of accessing External Jugular and Scalp veins by a Paramedic. Services should also carefully review patient care reports to ensure compliance with local protocol and adherence to Paramedic scope of practice.

Scope of Recommendation

This recommendation applies to the pre-hospital access External Jugular and Scalp Veins in pediatric patients by Paramedics in the pre-hospital setting when all other IV access sites have failed.



State of Tennessee Board of Emergency Medical Services
For EMS Medical Direction
APPROVED CLINICAL PRACTICES

EZ-IO (INTRA-OSSEOUS ACCESS)

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board Of Emergency Medical Services.

Procedure/Drug Name w/brief description:

EZ-IO (Intra-osseous Access)

Intra-osseous Access Devices are used to provide an alternative means of intra-vascular access. The EZ-IO device uses a unique powered driver to insert the needle.

Need:

Expand the definition of IO devices to include those with powered drivers.

Recommended staff/skill level:

EZ-IO is recommended for AEMT and Paramedics, who are trained with the device.

Training/Education Needed:

Training and Education regarding EZ-IO may occur at the EMS service level following the manufacturer's training program. Individual providers should possess documentation of training.

Quality Improvement Parameters:

EMS services should carefully monitor use of the device.

Scope of Recommendation:

This recommendation applies to the pre-hospital use of the EZ-IO intra-osseous access device.



State of Tennessee Board of Emergency Medical Services
For EMS Medical Direction
APPROVED CLINICAL PRACTICES

VASCULAR ACCESS PORTABLE ULTRASOUND

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board Of Emergency Medical Services.

Procedure/Drug Name w/brief description

Portable Ultrasound

Portable ultrasound is a device to allow the AEMT/EMT-IV and Paramedic to visualize difficult to locate veins in patients in the pre-hospital setting.

Need

Some patient's veins have proven very difficult to locate for IV needs and Portable Ultrasound can help ease that difficult process, limiting the need for IO devices and/or multiple needle sticks.

Recommended staff/skill level

Portable Ultrasound is for use by AEMT/EMT-IV, and Paramedics only.

Training/Education Needed

Training and Education regarding Portable Ultrasound will occur at the EMS service level. EMS Agency's Medical Director, who has authorized the use of Portable Ultrasound Devices by AEMT/EMT IV, and/or Paramedics, must show documentation of education and competency of the provider in the use of Portable Ultrasound Devices.

Quality Improvement Parameters

EMS services should carefully monitor of use of Portable Ultrasound by the AEMT/EMT IV and/or Paramedic. Services should also carefully review patient care reports to ensure compliance with local protocol and adherence to AEMT/EMT IV and/or Paramedic scope of practice.

Scope of Recommendation

This recommendation applies to the pre-hospital use of Portable Ultrasound by AEMT/EMT IV and Paramedics in the pre-hospital setting as a way to aid IV insertion without more invasive measures. Portable Ultrasound is NOT to be used as a diagnostic tool in the field.



State of Tennessee Board of Emergency Medical Services
For EMS Medical Direction
APPROVED CLINICAL PRACTICES

12 Lead EKG performed by EMS Providers

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board Of Emergency Medical Services.

Procedure/Drug Name w/brief description:

12 Lead EKG performed by EMS providers.

12 Lead EKG is used for the evaluation of patients exhibiting symptoms of Acute Coronary Syndrome. EKG lead placement and the procedure for obtaining and/ or transmitting a 12 Lead EKG is appropriate at the EMT or AEMT/EMT-IV Level. **Interpretation of 12 Lead EKG and patient intervention based on the 12 Lead EKG is within the scope of practice for Paramedics only.**

Need:

Expanding the use of 12 Lead EKG to the EMT or AEMT/EMT-IV is for the purpose of improving the quality of care provided by the EMS providers and is appropriate only for the acquisition and/or transmission of the EKG. **Any interpretation, intervention, or patient care decisions utilizing 12 Lead EKG is within scope of practice for Paramedics only.**

Recommended staff/skill level:

Acquisition and/or transmission of 12 Lead EKG is appropriate for the EMT or AEMT/ EMT-IV. **Any interpretation, intervention, or patient care decisions utilizing 12 Lead EKG is within scope of practice for Paramedics only.**

Training/Education Needed:

Training and Education regarding 12 Lead EKGs may occur at the EMS service level. EMS Services shall have appropriate documentation of all individual providers that have received appropriate training for obtaining and transmitting only of 12 Lead EKGs

Quality Improvement Parameters

EMS services should carefully monitor the quality of EKGs obtained by EMT or AEMT/EMT-IV's. Services should also carefully review patient care reports to ensure compliance with local protocol and adherence to EMT or AEMT/EMT-IV scope of practice. Paramedic obtained 12 Lead EKGs should also be monitored for proper interpretation and documentation and adherence to local treatment protocol.

Scope of Recommendation:

This recommendation applies to the pre-hospital use of 12 Lead EKG by an EMT or AEMT/EMT IV in obtaining and/or transmission of 12 Lead EKG. This is currently in the scope of practice for Paramedic and above.



State of Tennessee Board of Emergency Medical Services
For EMS Medical Direction
APPROVED CLINICAL PRACTICES

HEMORRHAGE CONTROL CLAMP DEVICES

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board Of Emergency Medical Services.

Procedure/Drug Name w/brief description

Hemorrhage Control Clamp Devices for Acute Hemorrhage

Use of the Hemorrhage Control Clamp Devices in the pre-hospital setting is for acute exsanguinating hemorrhage. Application of these devices should follow manufacturers recommendations and be utilized in extremities only.

Need

Rapid use of the Hemorrhage Control Clamp Devices appears to reduce morbidity and mortality in acute vascular traumatic injury and is approved for use in adults and pediatrics.

Recommended staff/skill level

Hemorrhage Control Clamp Devices is for use by all levels of EMS provider beginning at EMR.

Training/Education Needed

Training and Education regarding the Hemorrhage Control Clamp Devices will occur at the EMS service level. EMS Agency's Medical Director, who has authorized the use of the Hemorrhage Control Clamp Devices by all EMS providers, beginning at EMR, must show documentation of education and competency in the use of the Hemorrhage Control Clamp Devices.

Quality Improvement Parameters

EMS services should carefully monitor of use of the Hemorrhage Control Clamp Devices by the all EMS providers. Services should also carefully review patient care reports to ensure compliance with local protocol and adherence to the scope of practice.

Scope of Recommendation

This recommendation applies to the pre-hospital use of the Hemorrhage Control Clamp Devices by all EMS personnel, beginning with EMR in the pre-hospital setting to control acute hemorrhage in adult and pediatric patients.



State of Tennessee Board of Emergency Medical Services
For EMS Medical Direction
APPROVED CLINICAL PRACTICES

TOURNIQUETS FOR ACUTE HEMORRHAGE

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board Of Emergency Medical Services.

Procedure/Drug Name w/brief description

Tourniquets for Acute Hemorrhage

Use of tourniquets in the pre-hospital setting for the acute exsanguinating hemorrhage is making resurgence due to current military experience. Application of these devices should follow manufacturers recommendations and be utilized in extremities only.

The device comes in various sizes for pediatric to adult patients.

Need

Rapid use of tourniquets appears to reduce morbidity and mortality in acute vascular traumatic injury and is approved for use in adults and pediatrics.

Recommended staff/skill level

Tourniquets are for use by EMS providers at all levels.

Training/Education Needed

Training and Education regarding tourniquets will occur at the EMS service level. EMS Agency's Medical Director, who has authorized the use of must show documentation of education and competency of the EMS providers in the use of tourniquets.

Quality Improvement Parameters

EMS services should carefully monitor of use of tourniquet by the EMS Provider. Services should also carefully review patient care reports to ensure compliance with local protocol and adherence to EMS provider scope of practice.

Scope of Recommendation

This recommendation applies to the pre-hospital use of tourniquets by EMS Providers in the pre-hospital setting to control acute hemorrhage in adult and pediatric patients.



State of Tennessee Board of Emergency Medical Services
For EMS Medical Direction
APPROVED CLINICAL PRACTICES

TIME CRITICAL ILLNESS SYSTEMS OF CARE

The following procedure and or patient care issue has been evaluated by the Clinical Issues Committee for practical use in the interest of advancing pre-hospital patient care and approved for Emergency Medical Service personnel by the Board Of Emergency Medical Services.

Procedure/Drug Name w/brief description

Time Critical Illness Systems of Care

The State EMS Board approves the concept of regionalized systems of care related to time critical illnesses such as trauma, Acute Coronary and Cerebrovascular illness, and pediatrics. The goal of these systems is to expedite patients to the appropriate specialty care as quickly as possible, and may require EMS systems to bypass facilities which cannot provide the proper services.

Need

Specialty care for time critical illness is often not available at the geographically closest hospital, and may require EMS systems to alter their destination guidelines to ensure patients are transported to appropriate facilities. A system built on concepts similar to the Trauma care system has been shown to improve patient outcomes for many time sensitive diseases.

Recommended staff/skill level

EMS systems, in cooperation with local Healthcare facilities, should implement guidelines for transport to ensure no delays in the care of these patients.

Training/Education Needed

N/A

Quality Improvement Parameters

EMS services should carefully monitor system outcomes for patients with time critical illnesses to ensure they are being transported without delays to the most appropriate facility to care for the disease process.

Scope of Recommendation

This recommendation applies to the all EMS systems.