SIMULATION

A Simulated Scenario to Improve Communication Skills of Residents Providing Online Medical Command of Emergency Medical Service Providers

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ABSTRACT:

Audience: The primary audience for this simulation exercise is emergency medicine (EM) residents. Additionally, this scenario may be adapted to provide education for any EM provider involved in providing pre-hospital, on-line medical command of emergency medical services (EMS).

Introduction: Exposure to pre-hospital medical command and the ability to provide high quality and effective EMS medical direction are essential components of residency training in Emergency Medicine. The Accreditation Council for Graduate Medical Education (ACGME) Common Program Requirements for Emergency Medicine[1] stipulate that EM residents must have educational experiences in EMS, which should include direct medical oversight of EMS providers. Despite this requirement, there is a paucity of literature to provide clear direction on how residency programs should teach residents how to provide pre-hospital medical command. Prior literature has outlined that the majority of EM residency programs utilize a mix of didactics, structured readings, protocol review, observing EMS crews, and providing care in the field.[2,3] A recent survey revealed that the majority of residency programs meet the EMS requirement through a one-month rotation involving observation of ground-based pre-hospital care. In addition, 92% of residency programs have residents provide online medical command during their regularly scheduled ED shifts or during dedicated medical command shifts, but only 41% of programs have residents complete medical command certification training, although type of training is not delineated.[2] Additionally, a recent description of a model curriculum for EM resident training in EMS provides education on the principles of providing direct online medical command via didactics, asynchronous activities, and dedicated medical command shifts; however, it does not recognize or utilize simulation as a training modality.[3]To our knowledge, simulation scenarios of on-line medical command have not previously been described as a curricular component in EM

residency training. This case provides an opportunity for residents to learn how to communicate with pre-hospital providers while they are at the scene of a call—effectively teaching them to provide high quality and appropriate medical command, while simulating many of the challenges EM providers face.

Educational Objectives: By the end of this simulation, learners will be able to:

1. Discuss appropriate medical command instructions for pediatric cardiac arrest.
2. Describe alternative methods to obtain weight-based dosing of pediatric critical care medications, if Broselow tape is unavailable.
3. Identify need for a definitive airway in a pulseless patient without interruption of chest compressions.
4. Identify need for rapid intraosseous access in a pulseless pediatric patient.
5. Describe the indications for helicopter transfer in a critically ill child.

Educational Methods: This scenario is a simulated medical command phone-call, with details of patient presentation and condition being relayed to a medical command physician from a field EMS crew, as they would in a standard call.

Research Methods: The performance of this simulation scenario as a curricular instrument was evaluated utilizing an internally developed evaluation survey that is part of the standard simulation curriculum at West Virginia University (WVU). The survey consisted of both questions regarding effectiveness of the instructor and of the simulation scenario rated on a Likert scale as well as free response questions asking the learners to describe aspects of the simulation they felt positively about, as well as opportunities for improving the scenario.

Results: Learners completing the EMS command simulation reviewed the performance of the simulation and instructors positively, with all learners responding with a 4 or a 5 on a Likert scale. Responses to the free response questions demonstrated that the learners felt that the simulated medical command call was realistic, pertinent to their education, and helped them to realize what resources that EMS providers have available to them as well as the limited information that may be available to the field provider when they seek on-line medical command. The most common opportunity to improve the simulation cited by the learners was to introduce interruptions and distractions during the scenario to help increase the realism.

Discussion: Exposure to and instruction in providing on-line medical command for EMS providers is an integral part of EM residency training. This simulation scenario provides a realistic, low cost curricular instrument that could be applied in any residency training program as a component of an EMS didactic curriculum.

Topics: Emergency medical services (EMS); pre-hospital medical command; pediatric advanced life support (PALS); pediatric critical care; airway management, weight-based dosing, pediatric medication dosing.

USER GUIDE

List of Resources:

Learner Audience:
Interns, junior residents, senior residents, attending physicians and EMS fellows

Time Required for Implementation:
Instructor Preparation: Instructors will require roughly 10-15 minutes to review the scenario, including critical actions and debriefing summaries, and approximately 10-15 minutes to review the relevant pre-hospital protocols, which may vary from state to state.
Time for case: Roughly 10-15 minutes, depending on case progression.
Time for debriefing: 15-20 minutes

Recommended Number of Learners per Instructor:
One learner and one instructor per case.

Topics:
Emergency medical services (EMS), pre-hospital medical command, pediatric advanced life support (PALS), pediatric critical care, airway management, weight-based dosing, pediatric medication dosing.

Objectives:
By the end of this session, the learner will be able to:

1. Discuss appropriate medical command instructions for pediatric cardiac arrest.
2. Describe alternative methods to obtain weight-based dosing of pediatric critical care medications, if Broselow tape is unavailable.
3. Identify need for a definitive airway in a pulseless patient without interruption of chest compressions.
4. Identify need for rapid intraosseous access in a pulseless pediatric patient.
5. Describe the indications for helicopter transfer in a critically ill child.

Linked objectives and methods:
This format provides learners with a realistic simulation of communications with an active EMS unit facing a critical scenario in the field – seeking on-line medical command to assist in patient care. The scenario requires residents to respond promptly to the questions from the field crew, while providing an opportunity for review and recall of EMS field protocols, including designated scope of practice and equipment available to pre-hospital crews. Additionally, at the conclusion of the scenario, there is an opportunity to debrief scenario details in a supportive and constructive environment, focusing on learner performance and interpersonal communication skills. The scenario highlights one of the most challenging scenarios in Emergency Medicine—providing on-line medical command to an EMS crew treating an out-of-hospital pediatric cardiac arrest (Objective 1). This simple, yet realistic, format encourages learners to reflect on the challenges of high-stakes cases similar to this, as well as the difficulties inherent to communication with field EMS units. The crew will not have access to a Broselow tape, and the learner will be required to explore other options for weight-based dosing in a pediatric patient (Objective 2). In the initial phase of the case, after 2 rounds of compressions, the learner will identify the need for a definitive airway. The learner will then, naturally or through scripted prompting, provide instructions for this procedure with minimal interruptions in chest compressions and PALS protocols (Objective 3). The course of the scenario will require the learner to recognize the need for intraosseous access in a critically ill patient (Objective 4). Ultimately, the conclusion of the scenario will prompt the learner to recognize and describe the indications for helicopter transport in a critically ill pediatric patient (Objective 5). Additionally, this scenario can be implemented across a variety of educational settings, from individual learner sessions in a dedicated simulation center to small group didactic sessions utilizing a phone or simulated radio.

Recommended pre-reading for instructor:
Recommended pre-simulation reading for the instructor includes relevant local pre-hospital protocols for the management of pediatric cardiac arrest. The West Virginia Office of Emergency Medical Services Protocol for pediatric asystole is attached as Figure 1.

Learner responsible content:
Although no pre-session content is specifically required, learning may be enhanced if prior to the simulation learners are provided with local or regional EMS protocols pertaining to pediatric cardiac arrest, allowing them to be familiar with protocol guidelines prior to the simulated scenario (Figure 1).

Associated content:
West Virginia EMS PALS Protocol.

Results and tips for successful implementation:
This scenario was delivered to EM resident physicians of all postgraduate levels in a 3- year program with 30 residents as

part of the standard simulation curriculum. The scenario was written for implementation in a dedicated simulation center, where the instructor is not directly visible to the resident, but can contact the resident, via landline telephone in the simulation room, for on-line medical command. Alternatively, it can be implemented in a small group session, utilizing available telephones or cell phones, as long as the instructor is not directly visible to the resident, in order to maintain the functional realism of the EMS crew being in the field. The learner may have access to reference materials, including EMS protocols, smartphone-based applications that may have pediatric dosing calculations present, or any additional medical resource of their choosing. It may be necessary to guide the learner early in the scenario with prompts—such as, "we don't have access, and I can't get an IV on a kid this small" or "we don't have a Broselow tape, and I haven't worked on someone this small in a long time." This behavior will allow the learner to engage with the simulated phone call and support the functional realism of the scenario: although the learner is currently located in the simulation center, the learner is actively engaging with a stressed EMS provider who is acting as they typically would in a challenging patient scenario.

Learner reviews and feedback after completion of the scenario were largely positive, with learners commenting that the scenario enhanced their recall and understanding of pre-hospital protocols and increased comfort in providing on-line medical command via telephone during an anxiety-provoking clinical scenario.

References/suggestions for further reading:

1. Accreditation Council for Graduate Medical Education. ACGME program requirements for graduate medical education in emergency medicine. https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/110_emergency_medicine_2017-07-01.pdf. Accessed 23 May 2019.
2. Katzer R, Cabanas JG, Martin-Gill C, SAEM Emergency Medical Services Interest Group. Emergency medical services education in emergency medicine residency programs: a national survey. *Acad Emerg Med*. 2012;19(2):174-179. doi: 10.1111/j.1553-2712.2011.01274.x.
3. Verdile VP, Krohmer JR, Swor A, Spaite DW. Model curriculum in emergency medical services for emergency medicine residency programs. SAEM Emergency Medical Services Committee. *Acad Emerg Med*. 1996;3(7):716-722.

INSTRUCTOR MATERIALS

Case Title: Medical Command Simulation: Pediatric Cardiac Arrest Scenario

Case Description & Diagnosis (short synopsis): This case is an on-line medical command simulation. The learner is the physician receiving a telephone call from a ground EMS crew that is in the process of beginning resuscitation on a small child who had been found unconscious in a hot tub. The ultimate diagnosis is a pediatric cardiac arrest. The case is designed to prompt the learner to provide effective, on-line medical command to the EMS provider, allowing EMS to provide a high-quality standard of care to a critically ill pediatric patient.

Equipment or Props Needed:
Phone, if available. If a phone is not available, the simulation can be completed in small group session, speaking directly with learners.

Confederates needed:
Instructor to role play EMS crew; actor(s) to role play distraught parent(s) (optional).

Stimulus Inventory:
Given the nature of the learner's communicating and providing care via a pre-hospital EMS provider, this case did not utilize any specific paper stimuli for the learner to review.

Background and brief information: The learner receives a medical command call from a rural EMS crew on the scene of a 3-year-old female who was found submerged "face down" in a hot tub, and is now unresponsive and pulseless. The medic crew is inexperienced and is requesting guidance with the optimal way to proceed. If able to provide additional confederates, distraught parents can be heard in the background.

Initial presentation: The patient is a 3-year-old female who was found face down in a hot tub. The parents believe that the patient may have been submerged for approximately ten minutes. At the time of the call to 911, the patient was unresponsive, parents were unable to detect a pulse, and 911 operators were able to instruct the family to start cardiopulmonary resuscitation (CPR). At the time of EMS arrival, CPR was in progress. EMS providers arrived 15 minutes after the initial 911 call and took over CPR. At the time of the call to medical command, EMS was ventilating with a bag valve mask device with 100% oxygen, in addition to performing high-quality CPR. The crew does not note any obvious external signs of trauma and initial cardiac rhythm is asystole. No intravenous access has been obtained, and no

medications have been provided. The crew states they are "new and need guidance." Distraught family can be heard in background.

How the scenario unfolds: The learner should begin to instruct the crew on the basic aspects of pediatric advanced life support (PALS), but will begin to meet challenges early in the case progression due to the crew's reported inexperience. The first hurdle arrives when the learner requests that epinephrine be administered, and the crew informs the learner that they do not have access. If instructed by the learner to gain intravenous access, attempts to obtain access will fail, and the learner should instruct them to obtain intraosseous (IO) access.

After obtaining IO access, the crew will state they do not have a current patient weight, and should be prompted to use a Broselow tape. As the case progresses and EMS is following the PALS algorithm with the assistance of the learner, the bagging effort will become difficult, with inconsistent chest rise and a poor pulse oximetry (pulse-ox) wave form. At this juncture, the learner should instruct EMS to perform an endotracheal intubation. The learner will be asked by EMS for guidance regarding endotracheal tube size and depth. The learner should instruct the EMS provider to use a 4.5 or 5.0 endotracheal tube and insert the tube to a depth of approximately 13.5cm. Learner should request end-tidal carbon dioxide ($EtCO_2$) monitoring, which the crew will then hook up. After the second dose of epinephrine, $EtCO_2$ will increase to 35mmHg, suggesting a possible return of spontaneous circulation (ROSC). The learner should request a pulse check, which will reveal ROSC with a sinus rate of 150, no spontaneous respirations, and BP of 80/60. If the learner does not recognize the increase in $EtCO_2$ as being suggestive of ROSC, the learner can be prompted to stop compressions for a rhythm check by the EMS provider requesting to do so.

The case will close with the learner being questioned by the EMS provider in regards to the most appropriate destination for definitive care of the patient. The learner should suggest transport via helicopter or critical care equipped ambulance to the nearest tertiary care children's hospital.

INSTRUCTOR MATERIALS

Critical actions:

1. Obtain IO access.
2. Ask to obtain weight via Broselow tape.
3. Order 1.5 mL of 1:10,000 epinephrine every 3-5 minutes (0.01 mg/kg to be given specifically in mL to ease communication with the EMS provider).
4. Discuss intubation after being informed that bag valve mask (BVM) is failing, and instruct EMS to perform intubation without interruption in compressions.
5. Appropriately determine endotracheal tube size: 4.5-5.0cm.
6. Appropriately determine endotracheal tube depth: 13.5cm.
7. Request $EtCO_2$ monitoring via endotracheal tube.
8. Interpret change in $EtCO_2$ and perform rhythm check to confirm ROSC.
9. Approve request for flight.
10. Recommend flight transport (question will be prompted by EMS if not recommended by learner).

INSTRUCTOR MATERIALS

Case Title: Medical Command Simulation: Pediatric Cardiac Arrest Scenario

Chief Complaint: Pediatric cardiac arrest

Vitals: Pediatric cardiac arrest

General Appearance: Cyanotic, apneic, and pulseless (reported over phone via EMS)

Primary Survey:

- **Airway**: Apneic, easy bagging initially.
- **Breathing**: Apneic and cyanotic, equal breath sounds bilaterally while being provided breaths via BVM ventilation.
- **Circulation**: No central pulses.
- **Disability**: Glasgow coma score (GCS) is 3 at time of EMS arrival and report (reported over phone via EMS).

History:

- **History of present illness:** Parents deny any recent illness or significant history; the parents state they lost track of the child approximately 10-15 minutes prior to finding her submerged in the hot tub.
- **Past medical history**: Full-term, vaccines up to date, and no significant known past medical history.
- **Past surgical history:** None.
- **Patient's medications:** None.
- **Allergies:** No known drug allergies.
- **Social history:** Not obtained given emergent situation. If the learners attempt to obtain a social history, they will be informed that the patient lives with mother and father, both are nonsmokers.
- **Family history:** Not obtained given emergent situation. If the learners ask specifically for family history, the patient has no family history of juvenile cardiac arrest or SIDS. No significant family history of pediatric medical conditions or congenital issues, cardiac or otherwise.

Secondary Survey/Physical Examination:

- Can be provided by EMS provider over the phone in a *limited* fashion given primary survey.

- All specific queries regarding physical examination findings, with the exception of those mentioned in the primary survey, will be within normal limits.

Results:

Due to this case being a pre-hospital case, no lab work or imaging results are available for the learner(s).

OPERATOR MATERIALS

SIMULATION EVENTS TABLE:

Minute (state)	Participant action/ trigger	Patient status (simulator response) & operator prompts	Monitor display (vital signs)
0:00 (Baseline)	Case begins.	EMS calls for assistance in pediatric cardiac arrest.	Apneic and pulseless
	Learner requests information on the status of the patient.	EMS provides primary survey as above.	Apneic and pulseless
	Learner requests epinephrine be given.	No access.	Apneic and pulseless
	Learner requests IV placed.	Failure at obtaining peripheral IV access.	Apneic and pulseless
	Learner request IO placement.	Success.	Apneic and pulseless
	Learner inquires if there is a Broselow tape available.	No Broselow available, but EMS determines weight to be roughly 15kg.	Apneic and pulseless
	Learner requests epinephrine be given. EMS uncertain of dose and learner should clarify dose.	Epinephrine given; code continues. If learner fails to request epinephrine, no change in status. EMS provider prompts by asking learner if any medications should be given.	Apneic and pulseless
~05:00	EMS informs learner that BVM is becoming difficult. Learner should suggest intubation.	EMS intubates the patient. If learner fails to suggest intubation, EMS will continue to state that BVM is becoming difficult. If the learner continues to fail to suggest intubation, EMS will state they don't feel they are ventilating the patient at all.	

OPERATOR MATERIALS

Minute (state)	Participant action/ trigger	Patient status (simulator response) & operator prompts	Monitor display (vital signs)
	EMS requests recommendation on tube size and depth.	Suggests 4.5-5.0cm tube at 13.5cm.	Apneic and pulseless
	Code continues, +/- more epinephrine, requests $EtCO_2$.	Crew attaches $EtCO_2$ and gives initial reading at 18.	Apneic and pulseless
	Crew states that $EtCO_2$ increases suddenly to 35.	Learner recognizes that EtCO2 increase is likely due to ROSC, requests vital sign check	BP 100/60 HR 120 $EtCO_2$ 38 No spontaneous respirations
	EMS provider questions learner on most appropriate mode of transport to hospital. Patient is 38 min from nearest hospital by ground	Ground is not felt to be an acceptable answer; learner should request flight transportation. If learner suggests ground transportation, EMS should state that they do not feel comfortable with transporting patient by ground due to potential for decompensation.	
(Case Completion)	**Disposition:** Flight to nearest hospital.		BP 100/60 HR 120 $EtCO_2$ 38 No spontaneous respirations

Diagnosis:
Pediatric Cardiac Arrest

Disposition:
Transferred via helicopter to tertiary care children's hospital.

DEBRIEFING AND EVALUATION PEARLS

Medical Command Simulation: Pediatric Cardiac Arrest Scenario

Patient Care Pearls

- When participating in the care of a pediatric cardiac arrest, be familiar with the appropriate management of a pediatric patient using the appropriate PALS algorithm for asystole.
- In cases where peripheral IV access cannot be obtained immediately, an IO can be a rapid, efficient way to obtain access to provide critical resuscitation.
- Although obtaining a definitive airway is certainly important, high quality chest compressions should not be interrupted in order to attempt intubation.
- Obtaining an estimated weight and using a "peripheral brain" in the form of a Broselow tape, smart phone application, or alternative method—is a necessary step, prior to providing medications to a pediatric patient.
- End-tidal CO_2 is a useful way to confirm endotracheal tube placement in the pre-hospital setting. An increase in end-tidal CO_2 during resuscitation can also represent ROSC.

Pearls for On-Line Medical Command Communication Skills

- Although it can be difficult, it is important to remain calm on the phone with the pre-hospital provider. Raising the voice, speaking harshly, critically, or providing overly critical feedback to the provider in the field will only serve to increase provider anxiety and lead to strained communication.
- Becoming familiar with local EMS protocols for critical situations, including, but not limited to, pediatric cardiac arrest, is imperative. This will provide some familiarity with what equipment and medications are readily available to EMS providers in your region as well provide information regarding the scope of interventions that they may be comfortable with.
- Consider the difficulties related to the setting and likely stressors for EMS as they are working to provide care to a critically ill child in a resource-poor, high-stakes setting with distraught family members immediately present. Provide supportive guidance, while also trying to limit asking for extraneous information from EMS, so that they can efficiently provide the directed interventions.

Other debriefing points: Start with a broad discussion of the difficulties of giving direction via telephone, as in this case. Suggested debriefing questions engaging the learners regarding the challenges of providing on-line medical command are outlined following this paragraph. Gradually transition to a discussion regarding the difficulties faced by the crew in this case and the challenges of EMS providers in general. This will help to build the learner's perspective and

hopefully foster empathy and ease in future EMS interactions. Simulation educators utilizing this scenario should be aware that the high-stakes nature of this case surrounding a pediatric cardiac arrest may lead to strong emotional responses on the part of the learners. Educators should be mindful of this and allow time for learners to express their feelings during the initial reactions phase of the debriefing in order to allow the learners to process their reactions and ultimately engage with a discussion of the learning points and objectives.

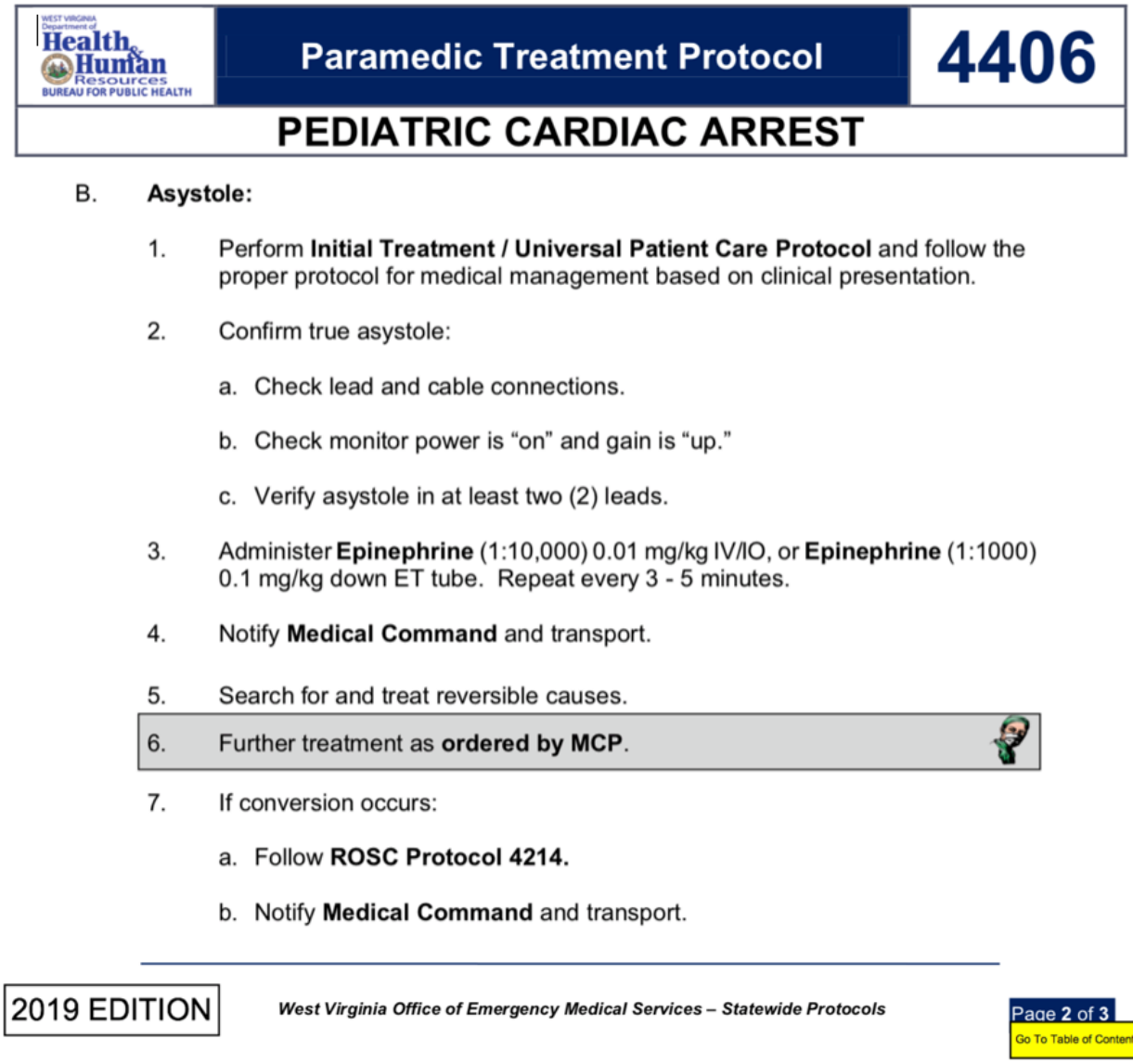
Suggested debriefing questions:

1. What did you feel was difficult or challenging while you were directing the care of the EMS provider?
2. Do you feel you received an adequate assessment from the EMS provider? What additional information might have been helpful initially about the patient or scene?
3. How would you provide feedback to the EMS provider and/or their medical director?
4. What factors play a role in deciding the most appropriate method of transport and destination for this patient? Would ground transportation ever be an acceptable option? (Yes, when flight transportation is not safe due to weather or when the scene is in close proximity to an appropriate receiving facility, which in this case would be a tertiary care children's hospital.)
5. What safety concerns do you have for this crew/scene?
6. What are the biggest differences between emergency medicine as practiced in the field and as practiced in the hospital?
7. In situations such as this it is very likely the family would be incredibly upset; what are some strategies you can use to help them in this incredibly emotional situation?

Wrap Up: No specific additional wrap up information is recommended in this case. Referencing and familiarity with the EMS protocol on pediatric cardiac arrest will be helpful for future management of similar cases by the learner.

DEBRIEFING AND EVALUATION PEARLS

Figure 1. West Virginia Office of Emergency Medical Services algorithm for resuscitation of pediatric asystolic arrest.



WEST VIRGINIA Department of Health & Human Resources BUREAU FOR PUBLIC HEALTH

Paramedic Treatment Protocol **4406**

PEDIATRIC CARDIAC ARREST

B. **Asystole:**

1. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.
2. Confirm true asystole:
   a. Check lead and cable connections.
   b. Check monitor power is "on" and gain is "up."
   c. Verify asystole in at least two (2) leads.
3. Administer **Epinephrine** (1:10,000) 0.01 mg/kg IV/IO, or **Epinephrine** (1:1000) 0.1 mg/kg down ET tube. Repeat every 3 - 5 minutes.
4. Notify **Medical Command** and transport.
5. Search for and treat reversible causes.
6. Further treatment as **ordered by MCP**.
7. If conversion occurs:
   a. Follow **ROSC Protocol 4214.**
   b. Notify **Medical Command** and transport.

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SIMULATION ASSESSMENT

Medical Command Simulation: Pediatric Cardiac Arrest Scenario

Learner: _____

Assessment Timeline

This timeline is to help observers assess their learners. It allows observer to make notes on when learners performed various tasks, which can help guide debriefing discussion.

Critical Actions:	0:00
1. Obtain IO access. 2. Ask to obtain weight via Broselow tape. 3. Order 1.5 mL (0.01 mg/kg) of 1:10,000 Epi every 3-5 minutes. (0.01 mg/kg to be given specifically in mL to ease communication with the EMS provider). 4. Discuss intubation after being informed that BVM is failing, and instruct EMS to perform intubation without interruption in compressions. 5. Appropriately determine endotracheal tube size: 4.5-5.0cm. 6. Appropriately determine endotracheal tube depth: 13.5cm. 7. Request $EtCO_2$ monitoring via endotracheal tube. 8. Interpret change in $EtCO_2$ and perform rhythm check to confirm ROSC. 9. Approve Request for flight 10. Recommend flight transport (question will be prompted by EMS if not recommended by learner).	

SIMULATION ASSESSMENT

Medical Command Simulation: Pediatric Cardiac Arrest Scenario

Learner: _____

Critical Actions:

☐ Obtain IO access.
☐ Ask to obtain weight via Broselow tape.
☐ Order 1.5 mL (0.01 mg/kg) of 1:10,000 Epi every 3-5 minutes. (0.01 mg/kg to be given specifically in mL to ease communication with the EMS provider).
☐ Discuss intubation after being informed that BVM is failing, and instruct EMS to perform intubation without interruption in compressions.
☐ Appropriately determine endotracheal tube size: 4.5-5.0cm.
☐ Appropriately determine endotracheal tube depth: 13.5cm.
☐ Request $EtCO_2$ monitoring via endotracheal tube.
☐ Interpret change in $EtCO_2$ and perform rhythm check to confirm ROSC.
☐ Approve request for flight
or
☐ Recommend flight transport (question will be prompted by EMS if not recommended by learner).

Summative and formative comments:

SIMULATION ASSESSMENT

Medical Command Simulation: Pediatric Cardiac Arrest Scenario

Learner: _____

Milestones assessment:

	Milestone	Did not achieve level 1	Level 1	Level 2	Level 3
1	**Emergency Stabilization (PC1)**	☐ Did not achieve Level 1	☐ Recognizes abnormal vital signs	☐ Recognizes an unstable patient, requiring intervention Performs primary assessment Discerns data to formulate a diagnostic impression/plan	☐ Manages and prioritizes critical actions in a critically ill patient Reassesses after implementing a stabilizing intervention
2	**Performance of focused history and physical (PC2)**	☐ Did not achieve Level 1	☐ Performs a reliable, comprehensive history and physical exam	☐ Performs and communicates a focused history and physical exam based on chief complaint and urgent issues	☐ Prioritizes essential components of history and physical exam given dynamic circumstances
3	**Diagnostic studies (PC3)**	☐ Did not achieve Level 1	☐ Determines the necessity of diagnostic studies	☐ Orders appropriate diagnostic studies. Performs appropriate bedside diagnostic studies/procedures	☐ Prioritizes essential testing Interprets results of diagnostic studies Reviews risks, benefits, contraindications, and alternatives to a diagnostic study or procedure
4	**Diagnosis (PC4)**	☐ Did not achieve Level 1	☐ Considers a list of potential diagnoses	☐ Considers an appropriate list of potential diagnosis May or may not make correct diagnosis	☐ Makes the appropriate diagnosis Considers other potential diagnoses, avoiding premature closure

Standardized assessment form for simulation cases. JETem © Developed by: Megan Osborn, MD, MHPE; Shannon Toohey, MD; Alisa Wray, MD
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Learner: _____

	Milestone	Did not achieve level 1	Level 1	Level 2	Level 3
5	**Pharmacotherapy (PC5)**	☐ Did not achieve Level 1	☐ Asks patient for drug allergies	☐ Selects an medication for therapeutic intervention, consider potential adverse effects	☐ Selects the most appropriate medication and understands mechanism of action, effect, and potential side effects Considers and recognizes drug-drug interactions
6	**Observation and reassessment (PC6)**	☐ Did not achieve Level 1	☐ Reevaluates patient at least one time during case	☐ Reevaluates patient after most therapeutic interventions	☐ Consistently evaluates the effectiveness of therapies at appropriate intervals
7	**Disposition (PC7)**	☐ Did not achieve Level 1	☐ Appropriately selects whether to admit or discharge the patient	☐ Appropriately selects whether to admit or discharge Involves the expertise of some of the appropriate specialists	☐ Educates the patient appropriately about their disposition Assigns patient to an appropriate level of care (ICU/Tele/Floor) Involves expertise of all appropriate specialists

SIMULATION ASSESSMENT

Medical Command Simulation: Pediatric Cardiac Arrest Scenario

Learner: _____

	Milestone	Did not achieve level 1	Level 1	Level 2	Level 3
9	**General Approach to Procedures (PC9)**	☐ Did not achieve Level 1	☐ Identifies pertinent anatomy and physiology for a procedure Uses appropriate Universal Precautions	☐ Obtains informed consent Knows indications, contraindications, anatomic landmarks, equipment, anesthetic and procedural technique, and potential complications for common ED procedures	☐ Determines a back-up strategy if initial attempts are unsuccessful Correctly interprets results of diagnostic procedure
20	**Professional Values (PROF1)**	☐ Did not achieve Level 1	☐ Demonstrates caring, honest behavior	☐ Exhibits compassion, respect, sensitivity and responsiveness	☐ Develops alternative care plans when patients' personal beliefs and decisions preclude standard care
22	**Patient centered communication (ICS1)**	☐ Did not achieve level 1	☐ Establishes rapport and demonstrates empathy to patient (and family) Listens effectively	☐ Elicits patient's reason for seeking health care	☐ Manages patient expectations in a manner that minimizes potential for stress, conflict, and misunderstanding. Effectively communicates with vulnerable populations, (at risk patients and families)
23	**Team management (ICS2)**	☐ Did not achieve level 1	☐ Recognizes other members of the patient care team during case (nurse, techs)	☐ Communicates pertinent information to other healthcare colleagues	☐ Communicates a clear, succinct, and appropriate handoff with specialists and other colleagues Communicates effectively with ancillary staff

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