RIVERSIDE COUNTY EMS AGENCY	Performance Standard	7307
	Effective **April 1, 2017**	Expires **March 31, 2018**
Category I Skill – Low Frequency/High Risk: **Synchronized Cardioversion**	Approval: Medical Director **Reza Vaezazizi, MD**	Signed
Applies To: **PM, MICN, BHP, EMS System**	Approval: REMSA Director **Bruce Barton**	Signed

Terminal Performance Objective

Termination of hemodynamically significant tachycardia resulting in restoration of adequate cardiac output and tissue perfusion.

Before performing synchronized cardioversion, paramedics must:

1. Methodically assess the patient's ABC's within 30 seconds.
2. Determine the patient is hemodynamically unstable due to idiopathic (non-compensatory) tachycardia and is a candidate for immediate cardioversion:
    a. Confirm the patient is exhibiting signs and symptoms of systemic poor perfusion (including but not limited to hypotension, altered mental status, chest pain, dyspnea/tachypnea, diaphoresis, pale/cool skin).
    b. Confirm tachycardia (HR greater than 150 in adults, greater than 180 in children, greater than 220 in infants) is present on the ECG.
    c. Confirm underlying causes of the dysrhythmia have been considered and reversible causes have been treated.
3. Provide supplemental oxygen in high concentration (10 – 15 LPM).
4. Confirm the ECG monitor leads have been placed appropriately.
5. Differentiate between wide and narrow complex tachycardia.
    a. Print Lead II strip prior to performing any medical treatment as this could appear to be a wide complex rhythm when in fact it is a paced rhythm (some monitors do not show pacer spikes).
    b. Consider performing a 12 Lead ECG prior to cardioversion if such delay does not cause harm to the patient.
6. Strongly consider Versed for sedation/amnesic affect for alert patients while preparing cardioversion equipment, but do not delay cardioversion in an unstable patient presenting with signs and symptoms of poor perfusion (hypotension, decreased LOC, chest pain, dyspnea/tachypnea, diaphoresis, pale/cool skin).
    a. If IV access is delayed, consider faster alternate routes of administration for Versed (IN/IM).
7. Explain to patient/family what they can expect to feel and to see while avoiding delays in treatment.

While performing synchronized cardioversion, paramedics must:

1. Select and prepare the appropriate sites for application of the ECG monitor/defibrillator multifunction pads.
    a. Proper pad placement on the patient's cleaned, dry skin is essential to minimize pain (heat generated from passage of current through the skin) and maximize current conduction. The better the contact, the more effective attempts at cardioversion will be.
2. Apply the ECG monitor/defibrillator multifunction pads (MFP) firmly to the patient's clean, bare skin in the correct anatomical locations for maximum electrical current flow through the heart.
3. Identify a patient with a pacemaker or automatic internal cardiac defibrillator (AICD) and place the MFP(s) in alternate position(s) to minimize damage to the device(s) and to avoid disruption of current flow through the heart.
4. Correctly place the ECG monitor/defibrillator in synchronize mode.
5. Confirm the monitor is tracking the R wave for delivery of synchronized current.
6. Select the correct energy setting on the ECG monitor/defibrillator.
    a. Per REMSA protocols
7. Assure everyone is clear from the patient and all possible energy conducting surfaces/contacts.
8. Discharge the defibrillator for synchronized delivery of electrical current.

9. Immediately re-assess the patient.
10. Perform and print a 12 Lead ECG and attach to PCR.
11. Provide treatment based upon re-assessment findings.

Critical Success Targets for Synchronized Cardioversion

1. Improvement in patient level of consciousness
2. Improved signs of perfusion
3. Resolution of patient's tachycardia-related signs and symptoms (chest pain)
4. ECG return to normal sinus rhythm or sinus tachycardia
5. Proficient use of the ECG monitor/defibrillator including lead and MFP placement

System Benchmark

% of patients receiving cardioversion with restoration of a stable perfusing rhythm

Applicable Protocols

The REMSA Treatment Protocol for Symptomatic Tachycardia with Pulses, and any other policy authorizing synchronized cardioversion.

Core Competency Requirements to be covered during education/training on synchronized cardioversion

1. Cardiovascular A & P
2. Cardiology – Pathophysiology of tachycardias
3. Assessment of circulation and recognition of hemodynamic instability
4. Identification and contraindications for synchronized cardioversion
5. Proper placement of ECG electrodes on patient
6. Proper placement of multi-function pads on patient
7. Patient communication techniques
8. Pre-cardioversion Versed for sedation and amnesic effect
9. Demonstrates proper technique for use of the ECG monitor/defibrillator for cardioversion
10. Post-cardioversion cardiac monitoring / rhythm recognition and treatment
11. Reassessment of patient

Adjunctive Performance Standards

Patient Assessment

Equipment Requirements

1. PPE
2. CPR mannequin(s)
3. Stethoscope
4. Cardiac monitor/ECG/Defibrillator
5. ECG Rhythm Generator
6. ECG electrodes
7. Defibrillation/Multifunction Pads
8. Versed
9. Pre-medication equipment (IV access, IN equipment, IM equipment)

Instructor Resource Materials

1. AHA ACLS Provider Manual
2. AHA PALS Provider Manual
3. Current AHA Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care
4. NHTSA EMS Educational Instructor Guidelines for EMT and Paramedic

Synchronized Cardioversion Validation

PERFORMANCE CRITERIA: 100% accuracy required on all items marked with an *

Before performing synchronized cardioversion, paramedics must:

Points	Score	Performance Steps	Additional Information
1		Take or verbalize body substance isolation.	Selection: gloves, goggles, mask, gown, booties, P100 PRN
1		Methodically assess the patient's ABC's within 30 seconds. *	
1		Determine the patient is hemodynamically unstable due to idiopathic (non-compensatory) tachycardia and is a candidate for immediate cardioversion. *	• Confirm the patient is exhibiting signs and symptoms of systemic poor perfusion: o Hypotension o Altered mental status o Chest pain o Dyspnea/tachypnea o Diaphoresis o Pale/cool skin • Confirm tachycardia is present on the ECG o Heart rate greater than 150 in adults o Heart rate greater than 180 in children o Heart rate greater than 220 in infants • Confirm underlying causes of the dysrhythmia have been considered and reversible causes have been treated.
1		Provide supplemental oxygen in highconcentration (10 – 15 LPM)	
1		Confirm the ECG monitor leads have been placed appropriately. *	
1		Differentiate between wide and narrow complex tachycardia. *	• Print a Lead II strip prior to performing any medical treatment as this could appear to be wide complex rhythm when in fact it is a paced rhythm (some monitors do not show pacer spikes) • Consider performing a 12 Lead ECG prior to cardioversion if such delay does not cause harm to the patient.
1		Strongly consider Versed for sedation/amnesic effect while preparing cardioversion equipment.	• Do not delay cardioversion in an unstable patient presenting with signs and symptoms of poor perfusion. • Use IN/IM route Versed for sedation/amnesic effect if IV access is poor.
1		Explain to the patient/family what they can expect to feel and to see.	Do not delay immediately needed treatment.

While performing synchronized cardioversion, paramedics must:

1		Apply the ECG monitor/defibrillator multifunction pads (MFP) firmly to the patient's clean, bare skin in the correct anatomical locations for maximum electrical current flow through the heart. *	• Anterior-posterior placement is recommended, if possible. • Proper pad placement on the patient's cleaned, dry skin is essential to minimize pain (heat generated from passage of current through the skin) and maximize current conduction. The better the contact, the more effective conduction will be.

1		Identify a patient with a pacemaker or automatic internal cardiac defibrillator (AICD) and place the MFP(s) in alternate position(s) to minimize damage to the device(s) and to avoid disruption of current flow through the heart *	
1		Correctly place the ECG monitor/defibrillator in synchronize mode. *	
1		Confirm the monitor is tracking the R wave for delivery of synchronized current *	
1		Select the correct energy setting on the ECG monitor/defibrillator.*	See the REMSA Calculation Chart for patient specific energy settings for both initial and subsequent shocks
1		Assure everyone is clear from the patient and all possible energy conducting surfaces/contacts. *	
1		Discharge the defibrillator for synchronized delivery of electrical current. *	
		Immediately reassess the patient. *	
		Perform a 12 Lead ECG and print a rhythm strip.	Attach the rhythm strip to your PCR.
		Provide treatment based upon reassessment findings.	
		Maintain calm and effectively lead a team-based approach to resuscitation under all conditions.*	
		Accurately document all assessment findings, therapeutic treatments, and the patient's response to therapy. *	

Critical Failure Criteria

____Failure to take or verbalize BSI appropriate to the skill prior to performing the skill
____Failure to identify indications for procedure
____Failure to ensure the functionality of cardiac monitor and availability of equipment
____Failure to assure that everyone is clear from the patient and all possible energy conducting surfaces/contacts.
____Failure to confirm efficacy of intervention
____Any procedure that would have harmed the patient