It is our pleasure to present to you this work as a result of team work of the national CPR committee at the Saudi Heart Association (SHA). We adapted the 2010 guidelines as per International Liaison Commission Of Resuscitation (ILCOR) which was published October, 2010.

We modified some of the items of 2005 guidelines and kept some as it is depending on our national need in the kingdom of Saudi Arabia. As an example, the sequence of A.B.C in children and infants should not change because most common cause of child and/or infant arrest is respiratory, so respiratory assessment should take place at the beginning.

Reviewing the international resuscitation science since 2010 till 2012, there is a great emphasis on the early CPR and early defibrillation which make difference between life and death, good outcome and bad outcome of in hospital CPR. there is also a great emphasis on CPR awareness to the community through the skillful programs.
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UNRESPONSIVE?

Shout for help / Call 997 and AED

look for breathing effort

NOT BREATHING NORMALLY? OR GASPING BREATH

30 chest compressions

Go for ABC assessment

Look, listen, feel (if HCP or trained layperson) OPEN AIRWAY

2 rescue breaths (if HCP or trained layperson) 30 compressions

Repete this step until EMS arrives or unable to proceed
IN HOSPITAL RESUSCITATION

Collapsed / Sick patient

Shout for HELP & assess patient / call for defibrillator

Signs of life?

NO

Call resuscitation team

CPR 30:2 with oxygen & airway adjuncts

Apply pads/monitor Attempt defibrillation If appropriate

Advanced life Support when resuscitation team arrives

YES

Assess ABCDE

Recognize & treat
Oxygen, monitoring, iv access

Call resuscitation team If appropriate
Or first response team (FRT)

Handover to resuscitation team or FRT
Unresponsive?

Shout for Help

Open Airway

Look, listen, feel (if HCP or trained layperson)
Not breathing normally? No signs of life?

2 rescue breaths,
30 chest compression if one rescue

Call cardiac arrest team or Pediatric ALS team
ADULT FOREIGN BODY AIRWAY OBSTRUCTION TREATMENT

Assess Severity

Mild Airway Obstruction (effective cough)

Encourage Cough
Continue to check for deterioration to ineffective cough or until obstruction relieved.

Severe Airway Obstruction (ineffective cough)

Conscious
5 abdominal thrusts repeatedly

Unconscious
Start CPR
PAEDIATRIC FOREIGN BODY AIRWAY OBSTRUCTION TREATMENT

Assess Severity

Mild Airway Obstruction (effective cough)

Encourage Cough
Continue to check for deterioration to ineffective cough or until obstruction relieved.

Severe Airway Obstruction (ineffective cough)

Conscious

Unconscious

(5 back blows 5 chest thrusts for infant)
(5 abdominal thrusts for child > 1 year)

Open airway
2 breaths
Start CPR
Unresponsive?

Look for Breathing Effort
Not breathing normally/or gasping breath

Call 997 and AED

CPR 30:2
Until AED is attached

AED Assesses Rythm

Shock Advised

No Shock Advised

1 Shock

Immediately resume: CPR 30:2 for 2 min

Immediately resume: CPR 30:2 for 2 min

Continue until the victim starts to wake up: to move, open eyes and to breathe normally
Unresponsive?
Not breathing or only occasional gasps

Call Resuscitation Team

CPR 30:2
Attach defibrillator/monitor Minimize interruptions

AED Assesses Rythm

Shockable (VF/Pulseless VT)

Return Of Spontaneous Circulation

No Shock Advised

1 Shock

Immediately resume: CPR 30:2 for 2 min
Minimize interruptions

Immediate Post Cardiac Arrest Treatment
- Use ABCDE approach.
- Controlled Oxygenation and ventilation.
- 12 lead ECG.
- Treat precipitating cause.
- Temperature control / Therapeutic hypothermia.
- Entidal Co2 monitoring.

Immediately resume: CPR 30:2 for 2 min
Minimize interruptions

DURING CPR
• Ensure high-quality CPR: rate, depth, recoil
• Plan actions before interrupting CPR
• Give oxygen
• Consider advanced airway and capnography
• Continuous chest compressions when advanced airway In place
• Vascular access intravenous, intraosseous)
• Give epinephrine every 3-5 min
• Amiodarone 300 mg IV bolus for refractory VF/pulseless VT
• Correct reversible causes

REVERSIBLE CAUSES
• Hypoxia
• Hypervolemia
• Hypo- / hyperkalemia / metabolic
• Hypothermia
• Thrombosis - coronary or pulmonary
• Tamponade - cardiac
• Toxins
• Tension pneumothorax
Call Resuscitation Team

Unresponsive?
- Not breathing or only occasional gasps

CPR 30:2
- Attach de/fibrillator/monitor
- Minimize interruptions
- AED Assesses Rythm
- Shockable (VF /Pulseless VT)
- Return Of Spontaneous Circulation

1 Shock
- Immediately resume:
  - CPR 30:2 for 2 min
  - Minimize interruptions

No Shock Advised

ADVANCED LIFE SUPPORT

Immediate Post Cardiac Arrest Treatment
- Use ABCDE approach.
- Controlled Oxygenation and ventilation.
- 12 lead ECG.
- Treat precipitating cause.
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ACS ALGORITHM (DIAGNOSES)

Patient with clinical signs & symptoms of ACS

12 Lead ECG

ST Elevation
- ≥ 0.1 mV ln ≥ 2 adjacent limb leads and/ or
- ≥ 0.2 mV in ≥ adjacent chest leads or (presumably) new LBBB

STEMI

Other ECG alterations
- (or normal ECG)

= NSTEMI if troponins (T or I) positive

= UA if troponins remain negative

Non-STEMI-ACS
- High risk
  - Dynamic ECG changes
  - ST depression
  - Hemodynamic/rhythm Instability
  - Diabetes mellitus

STEMI

= UA if troponins remain negative
**ECG**

**Pain Relief**
Nitroglycerin if systolic BP > 90 mmHg
± Morphine (repeated doses) of 3-5 mg until pain free

**Antiplatelet Treatment**
160-325mg Acetylsalicylic acid chewed tablet
75 - 600 mg Clopidogrel according to strategy*

**OXYGEN THERAPY**
if Spo2 < 94 %

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**STEMI**

- Thrombolysis preferred if: No contraindications and inappropriate delay to PCI

**Non-STEMI-ACS**

- PCI preferred if: Within the time window & availability of highly specialized center. Contraindications for thrombolytic therapy, cardiogenic shock (or severe left ventricular failure)

According to risk stratification:
- Antiplatelet therapy
- Antianginal therapy
- Antithrombin therapy
- Serial cardiac enzymes
- Reperfusion for high risk
BRADYCARDIA ALGORITHM

• Assess using the ABCDE approach
• Ensure oxygen given and obtain IV access
• Monitor ECG, BP, SpO2, record 12 lead ECG
• Identify and treat reversible causes (e.g. electrolyte abnormalities)

Assess for evidence of instability signs:
1. Shock
2. Syncope
3. Myocardial ischemia
4. Heart failure

Interim Measure:
Atropine 500 mcg IV
• Repeat to maximum of 3 mg
• Isoprenaline 5 mcg/min
• Epinephrine 2-10 mcg/min
• Alternative drugs*
  OR
• Dopamine/dobutamine infusion
  (alternative to transcutaneous pacing)
• Transcutaneous pacing

Seek Expert help
Arrange transvenous pacing

Risk of Asystole?
- Recent asystole
- Mobitz 2 AV block
- Complete heart block with broad QRS
- Ventricular pause > 3s

* Alternatives include:
  • Aminophylline
  • Dopamine
  • Glucagon (if beta-blocker or calcium channel blocker overdose)
Assess using the ABCDE approach
- Ensure oxygen given and obtain IV access
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1. Shock
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TACHYCARDIA ALGORITHM (WITH PULSE)

Synchronized DC Shock*
Up to 3 attempts

- Amiodarone 300 mg IV over 10-20 min & repeat shock; followed by:
  - Amiodarone 900 mg over 24 h

Broad QRS
Is QRS regular?

- Use vagal maneuvers
- Adenosine 6 mg rapid IV bolus; if unsuccessful give 12 mg; if unsuccessful give further 12 mg.
- Monitor ECG continuously

Possibilities Include:
- AF with bundle branch block treat as for narrow complex
- Pre-excited AF consider amiodarone
- Polymorphic VT (e.g. torsades de pointes) give magnesium 2 g over 10 min

Irregular narrow complex tachycardia
Probable atrial fibrillation
Control rate with:
- B-Blocker or diltiazem
- Consider digoxin or amiodarone
If evidence of heart failure
Anticoagulate if duration > 48h

If Ventricular Tachycardia:
- Amiodarone 300 mg IV over 20-60 min; then 900 mg over 24 h
  If previously confirmed SVT with bundle branch block or (uncertain monomorphic rhythm):
  - Give adenosine as for regular narrow complex tachycardia

If Normal sinus rhythm restored?

- Amiodarone 300 mg IV over 20-60 min; then 900 mg over 24 h
  If previously confirmed SVT with bundle branch block or (uncertain monomorphic rhythm):
  - Give adenosine as for regular narrow complex tachycardia

Probable re-entry PSVT:
- Record 12 lead ECG in sinus rhythm
  - If recurs, give adenosine again & consider choice of antiarrhythmic prophylaxis

Possible atrial flutter
- Control rate (e.g. B-Blocker)

*Attempted electrical cardioversion is always undertaken under sedation or anesthesia
Unresponsive?
Not breathing or only occasional gasps

CPR as 2 rescuers.
(2 initial breaths then 15:2)
Attach defibrillator/
monitor Minimize interruptions

Assesses Rythm

Shockable
(VF /Pulseless VT)

Returns Of
Spontaneous
Circulation

No Shock Advised
(PEA/Asystole)

1 Shock 4 J/Kg

Immediately resume:
CPR for 2 min
Minimize interruptions

Immediate Post Cardiac
Arrest Treatment
- Use ABCDE approach
- Controlled Oxygenation
and ventilation
- Investigations
- Treat precipitating cause
- Temperature control
- Therapeutic hypothermia
- Endtidal CO2 monitoring

Immediately resume:
CPR for 2 min
Minimize interruptions

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