



المديرية العامة للمؤسسات الصحية الخاصة  
*Directorate General of Private  
Health Establishments*



وزارة الصحة  
*Ministry of Health*

# Emergency Crash Cart & Cardiopulmonary resuscitation Guidelines

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## Acronyms:

<b>CPR</b>	Cardio-Pulmonary Resuscitation
<b>DGPHE</b>	Directorate General of Private Health Establishments
<b>GP</b>	General Practitioner
<b>IPC</b>	Infection Prevention and control
<b>MoH</b>	Ministry of Health
<b>PHE</b>	Private Health Establishment
<b>SOPs</b>	standard operating procedures

## Definitions:

1. **Guideline:** is a technical communication document, which contains operating instructions on a particular topic or subject. It is intended to give assistance to the users to facilitate their job
2. **Standard (SOP):** is a specific expectation of an organization or institute, described in terms of an activity or outcome against which their actions can be measured
3. **Version:** refers to the current status of the document with regards to the number of times the document has been revised.
4. **Crash Cart/Crush Trolley:** is a trolley (a set of trays/ drawers/ shelves on wheels) used in health care facilities; carrying emergency medication and equipment for use in emergency resuscitations to potentially save someone's life.
5. **Physician:** MoH licensed physician or dentist
6. **Emergency:** a situation that requires an immediate surgical intervention to preserve the patient's life or prevent major complications.
7. **Healthcare professional:** a natural person who is authorized and licensed by MoH Authority to practice any of healthcare professions in the Private Health Establishments.
8. **Healthcare worker:** an individual employed by the health establishment, (whether directly, by contract with another establishment), provide direct or indirect patient care, this includes but not limited, healthcare professionals, medical and nursing students, administrative staff and contract employees who either work at or come to the hospital site

## **Chapter One**

### **1.1 Introduction:**

There is a wide range of cart types used throughout a health organization. The contents of the cart are to be stocked consistently, while the configuration may have to change according to the cart type. This document was prepared for a four-drawer cart configuration. For carts with different numbers of drawers, the list can be reformatted provided a basic Airway / Breathing / Circulation configuration is followed. A cart that cannot adequately house the standard contents list should not be used.

The purpose of the Emergency Crash Cart is for cardio-pulmonary resuscitation and management of other emergencies. It should be easily accessible in the health care facility and able to be moved to any area within the facility if required. This guideline is important to ensure CPR practices and procedures are implemented and adhered to with the aim of reducing incidents/adverse events, achieving best health outcomes, and preventing future claims/breaches.

Multiple auditing assessments conducted to many private health establishments have highlighted health care vulnerabilities, with emergency cases management and crash cart singled out as a key area for improvement and action.

### **1.2 Scope and Purpose:**

This document on the Guidelines for CPR and emergency crash cart has been developed in order to support the policy decisions and Code of Practice concerning emergency cases management and provide a functional guidance to standardize the procedure for managing emergency situations related to CPR in facilities licensed by the DGPHE. All Healthcare professionals shall comply at all times with the requirements of Code of Practice for MoH policies and guidelines.

This document is applicable to all private healthcare institutes in MoH as explained clearly in this guideline.

At the facility level, this guideline is intended to enable administrators, clinical managers, healthcare professionals to practice CPR and develop their own standard operating procedures (SOPs).

At the national level, this document can serve as guidance to policy-makers and auditors responsible for developing and monitoring these activities in various national health programs.

### **1.3 Structure:**

This is the first version of this guideline and it consists of several chapters. Chapter one covers a brief introduction to the guideline including the background of the topic with the rationale and situation analysis, the scope, purpose and structure of this guideline. Chapter two covers the procedure which states requirements intended for safe practice, CPR Team Roles, maintenance instructions and the contents of the Crash Cart for both adults and pediatrics. Chapter three covers the responsibilities. Finally, chapter four comprises of the version control table, and references.

## **Chapter Two**

### **2.1 Procedure:**

#### **Requirements:**

1. Any professional medical staff (physicians, dentists and nurses) working in Oman should have their certificates in BLS, ACLS, PALS, etc., from AHA approved centers
2. Physicians working in Emergency Department should maintain valid BLS, ACLS, PALS and ATLS (Advanced Trauma Life Support).
3. Nurses working in ICU, Emergency Department, High-Dependency Department and Company Clinics (First-Aid) should maintain valid BLS and ACLS certificates.
4. Pediatrics and nurses working in pediatric departments should maintain valid BLS and PALS (pediatric advanced life support) certificates
5. Pediatrics and nurses working in NICU (Neonatal ICU) should maintain valid BLS and NRP (neonatal resuscitation program).
6. Obstetricians working in delivery suites should maintain valid BLS, ACLS and NRP.
7. Nurses working in delivery suites should maintain valid BLS and NRP.
8. Physicians working in Home Care Service should maintain valid BLS and ACLS.
9. Recertification is every 2 years...it's a must
10. Any PHE with the following services:

in-patient, ICU, A&E, High-Dependency, any procedure that needs other than topical anesthesia should have Crush Trolleys and ACLS or other advanced certification such as: PALS/ NRP.

11. Any PHE which provide services using topical anesthesia, such as: Ophthalmology, Dermatology, Radiology and Dental clinic/center should have only:  
AED (Defibrillator), AMBU-bag and BLS certification (as a must) + Epinephrine Pen IM.
12. All PHEs should keep a poster of (BLS STEPS) in all departments (a print-out could be obtained from the AHA website)
13. A checklist confirming everything that should be on the cart
14. At least, once daily to check contents; Daily check of the trolley function and equipment/ medications (Daily check should be recorded)
15. To provide pediatric sizes if pediatric service is available at the facility
16. An active reporting system by all PHEs is enforced and required in order to assess and solve issues related to CPR system management

#### **CPR Team Roles:**

1. CPR Team should consist of 5 members (Team leader, Chest Compressor, Airway person, Defibrillator operator, Medications, Chart recorder (if less personal, they need to manage accordingly)). **Note:** for small clinics: two or three members should be enough to form the team; distributing roles accordingly.
2. Every PHE should keep a list and schedule of CPR team
3. Every PHE should have an activation system for the CPR team (Code Blue)
4. Every PHE should do drills (MOCK) on monthly basis in the facility and keep records of this

#### **Maintenance Instructions:**

1. The emergency crash cart needs to be routinely maintained and checked on daily basis.
2. There must be an inventory- crash cart checklist- of the medications, equipment and IV fluids listed by the contents of each drawer in the cart.



3. The oxygen tank pressure or level of all oxygen tanks must be checked on a weekly basis and after any cardiac arrest occurs in the facility. The check documentation (oxygen checklist) should include the date, the pressure or level of oxygen in the tank and staff signature.
4. The medications inventory should contain the name of the drug, strength of the drug, the amount of drugs and the expiration date.
5. The inventory needs to be checked daily to account for all equipment, medications and IV fluids.
6. The medications need to be checked monthly for their expiration dates. Expired medications should be replaced prior to the expiration date.
7. A member of the medical staff should be responsible for routinely checking the contents and operation of equipment and supplies. A checklist should be maintained and signed by the person doing the checks for this purpose.
8. All maintenance records must be maintained in a file that is kept with the emergency crash cart.

### **Defibrillator Maintenance:**

The defibrillator must be checked daily at the beginning of each shift. In addition, regular scheduled maintenance program for the defibrillator in accordance with the manufacturer's recommendations should be followed.

The following must be checked:

1. Condition: Unit clean, no spills. Clear of objects on top, case intact.
2. Multi-function pads: 1 set pre-connected, 1 spare set
3. Multi-function cable and connector: free of cracks, broken wires.
4. Battery: In unit, fully charged.
5. Operation checks:

These should follow the specific manufacturer's recommendations based on the defibrillator model used. The following is an example:

- a. Power on sequence: turn unit to "ON", beep tone heard
- b. Defibrillator: Connect multi-function cable to test connector, "CHECK PADS" displays Press ANALYZE button, unit charges to 30J Press and hold SHOCK button, "TEST OK" is displayed and printed

- c. Recorder: Check for adequate paper supply Press RECORDER button, recorder runs Press RECORDER again, recorder stops Inspect for record printing

The list in *Annex One* outlines the necessary medications and equipment necessary for resuscitation (**A Standard Crash Cart**) of ill patients. The suggested list is mostly based on adult sized patients. The patient population catered for in the individual institution should determine availability of pediatric (neonatal, infant, child) sizes. These sizes may be unnecessary in specialized facilities that do not deal with this age group, e.g. OBGYN clinic. However, adult sizes should be made available universally.

## Chapter Three

### Responsibilities

1. CPR Committee Members:
  - To update this guideline on time
2. Quality Control & Patient Safety Department:
  - To ensure implementation of this guideline in all PHEs
3. Health Facility Director:
  - To ensure equip the crash cart, build-up CPR team in the facility and implement this guideline in the facility
4. Healthcare Professionals:
  - To obtain BLS/ACLS certification and training

## Chapter Four

### Document History and Version Control

Version	Description	Review Date
1	Initial release	June/2026
2	Version 2	

### References:

1. IPC National Guidelines, Oman, 2020
2. Crash Cart Audit Checklist, 2021
3. Emergency Crash Cart: Contents & Maintenance, June 2013, Updated January 2015
4. Policy & Guidelines for Crash Cart, July 2017
5. Guideline for Document Development, August 2022

**Annex One****Emergency Crash Cart Contents (Standard)**

No.	Item/Medication	Quantity	Remarks
<b>On Top</b>			
1.	Defibrillator	1	To include pediatric paddles
2.	Defibrillator/pacer cable	1	
3.	ECG cable and leads	1	
4.	ECG electrodes		
5.	Oxygen tubing		
6.	Oxygen cylinder with gauge	1	
7.	Stethoscope	1	
8.	Sphygmomanometer	1	Pediatric size cuffs to be included if within scope of facility
9.	Foot pump with suction catheter	1	
10.	Stop clock	1	
11.	IV pole	1	
12.	CPR board	1	
13.	Sharp container	1	
<b>First Drawer (Medication)</b>			
1.	EpiPen® or Epinephrine 1:1,000	2	EpiPen Jr® or Epinephrine 1:1,000 for pediatric
2.	Epinephrine 1:10,000	4	
3.	Atropine sulfate 1 mg/ml	3	
4.	Lidocaine 2% 20 mg/ml	4	
5.	Calcium gluconate 10% 1 gm/1 ml	2	

6.	Magnesium sulfate 50% 0.5 gm/ml	1	
7.	Dextrose 50% (50ml)	2	Dextrose 10% if treating pediatrics
8.	Sodium bicarbonate 8.4% (50ml)	2	
9.	Naloxone 0.4 mg/ml	2	
10.	Amiodarone 150 mg/3 ml	3	
11.	Dopamine 400 mg/10 ml	2	
12.	Adenosine 6 mg/2 ml	6	
13.	Procainamide 1000 mg/10 ml	2	
14.	Chlorpheniramine 10 mg/ml	2	
15.	Methylprednisolone 40 mg/ml	2	
16.	Verapamil 2.5 mg/ml	2	
17.	Aspirin 81mg tablet	2	
18.	Nitroglycerin (GTN) 0.4mg sublingual tablet (or spray)	4 (1)	
<b>Second Drawer (Airway)</b>			
1.	Oropharyngeal airways (sizes 2,3,4)	1 each size	Pediatric sizes to be included if within scope of facility
2.	Nasopharyngeal airways (sizes 6,7,8 mm)	1 each size	Pediatric sizes to be included if within scope of facility
3.	Laryngeal Mask airways (sizes 3,4,5)	1 each size	Pediatric sizes to be included if within scope of facility
4.	Laryngoscope	1	To include spare light + batteries
5.	Macintosh Laryngoscope blades (sizes 2,3,4)	1 each size	Pediatric sizes to be included if within scope of facility

6.	Miller Laryngoscope blades (sizes 2,3,4)	1 each size	Pediatric sizes to be included if within scope of facility
7.	Endotracheal tubes (size 6-8.5 mm)	2 each size	Pediatric sizes to be included if within scope of facility
8.	Intubating stylets	1	Pediatric size to be included if within scope of facility
9.	Bougie catheter (Coudé Tip)	1	
10.	Magill forceps	1	Pediatric size to be included if within scope of facility
11.	Oxygen non-rebreather mask	1	Pediatric sizes to be included if within scope of facility
12.	Nasal cannula	1	Pediatric sizes to be included if within scope of facility
13.	Oxygen mask	1	Pediatric sizes to be included if within scope of facility
14.	Suction tubing	1	
15.	Suction catheter (sizes 10,12,14F)	1 each	Pediatric sizes to be included if within scope of facility
16.	Yankauer suction tip	1	Pediatric size to be included if within scope of facility
17.	20 cc syringe	2	
18.	Lubricant gel	2	
19.	Waveform Capnography	1	
20.	Intraosseous needle	1	

Third Drawer			
1.	Tourniquet	2	
2.	2 cc syringe	5	
3.	5 cc syringe	3	
4.	10 cc syringe	2	
5.	14 G IV cannula	4	
6.	16 G IV cannula	4	
7.	18 G IV cannula	4	
8.	20 G IV cannula	5	
9.	22 G IV cannula	5	
10.	24 G IV cannula	5	for pediatric use
11.	26 G IV cannula	5	for pediatric use
12.	18 G 1" needle	6	
13.	20 G 1" needle	6	
14.	22 G 1" needle	6	
15.	Butterfly needles	4	
16.	Intraosseous needle (adult size)	1	Pediatric sizes to be included if within scope of facility
17.	Razor	1	
18.	3 way stopcock	2	
19.	Alcohol swabs	15	
20.	Sterile gauze	5	
21.	Adhesive tape	5	
22.	Syringe nasal adaptor (nasal naloxone atomizer)	1	
23.	Scalpel	1	
24.	NaCl 5 ml flush	6	
25.	Scissors	1	

<b>Fourth Drawer/Bottom Shelf</b>			
1.	Bag-Mask-Valve device with reservoir (mask sizes 4,5,6 )	1 each	Pediatric mask and reservoir sizes to be included if within scope of facility
2.	Pressure infusion bag	1	
3.	Sodium Chloride 0.9%, 500 ml	2	
4.	Lactated Ringers, 500 ml	2	
5.	IV administration tubing	2	
6.	Broselow Pediatric Chart	1	Optional depending on scope of facility