

# **Provincial Equipment Standards for Ontario Ambulance Services**

Version 2.0

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Emergency Health Services Branch  
Ministry of Health and Long-Term Care





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## Introduction

Part “A” of this document contains the following equipment lists:

List 1(a) – Land Ambulance Accessory Equipment

List 1(b) – ERV Accessory Equipment

List 2 – Land Ambulance Patient Care Equipment

List 3(a) – Emergency Response Vehicle (ERV) Equipment-Responder

List 3(b) – Emergency Response Vehicle (ERV) Equipment-Support/Command

List 4 – Land Ambulance Advanced Life Support Equipment and Drug List

List 5 – Land Ambulance Auxiliary Equipment and Drug List (optional)

Lists 1 - 4 specify the minimum quantities of each piece of equipment that are required to be carried on a land ambulance or emergency response vehicle to provide care for a **minimum of two (2) patients**, and to transport a **minimum of one (1) patient**. The lists also identify standards that apply to specific equipment items. Where a standard has been developed by Emergency Health Services Branch (EHSB), the applicable EHSB Equipment Standards Reference Number has been provided. The lists, in some cases, reference standards developed by an external organization (e.g. CSA). In such cases, the equipment identified must meet or exceed these referenced standards.

Part “B” of this document contains the actual equipment standards for those items in Part “A” identified as having to meet minimum standards developed by Emergency Health Services Branch.

### 1.0 Scope of the Standards

1.1 The Provincial Equipment Standards for Ontario Ambulance Services describe, where established, the acceptable minimum requirements for medical and accessory equipment required to be carried in land ambulances and emergency response vehicles (ERVs) for use in the Province of Ontario.

These minimum requirements reflect current pre-hospital care practices in Ontario. Their purpose is to ensure that:

- equipment is consistent with current patient care standards as established by the Ministry of Health and Long-Term Care, Emergency Health Services Branch;
- a uniform level of patient care is provided throughout the province;
- equipment meets current medical standards and practices;
- equipment is compatible for use in an ambulance or ERV that meets the current standards for those vehicles in Ontario.

1.2 Equipment lists found in Part “A” of the Provincial Equipment Standards for Ontario Ambulance Services, describe the minimum quantities of medical and accessory equipment to be carried for use in land ambulances and ERVs in the Province of Ontario. Ambulance service operators may determine the location where the equipment is stored in an ambulance or ERV to meet their operational and patient care needs, except in cases where the quantity and location of the equipment has been described in a specific standard.

- 1.3 Each ambulance service operator may determine the appropriateness of disposable versus non-disposable medical equipment when selecting equipment however, the equipment selected and carried must meet any applicable standards.
- 1.4 Each ambulance operator may determine the appropriateness of personal issue equipment to their staff in lieu of stocking the equipment in an ambulance or ERV (e.g. helmets). All equipment provided to staff as personal issue must meet any applicable standards indicated in this document.
- 1.5 The minimum quantities of medical equipment are intended to ensure that each type of ambulance has adequate inventory to provide typical patient care for a minimum of two (2) patients.
- 1.6 An ambulance service operator is fully responsible for any equipment carried on an ambulance or ERV, including any equipment that is not contained in the lists set out in Part “A”. This responsibility will include:
  - the cost of acquiring and maintaining the equipment;
  - ensuring that the use of the equipment is within the scope of practice of the staff using the equipment;
  - ensuring that their staff are adequately trained in the use of the equipment;
  - the cost of providing any necessary training to their staff;
  - ensuring that the equipment is safely stored in the ambulance or ERV.

## **2.0 General Requirements for Equipment**

- 2.1 Ambulance service operators are responsible to ensure that all equipment/medical devices purchased for use on an ambulance or ERV are approved or licensed by Health Canada for sale in Canada, where applicable.
- 2.2 All equipment carried in an ambulance or ERV must comply with any applicable Acts, regulations and standards, including the following:
  - a) *Food and Drugs Act* (Canada);
  - b) *Hazardous Products Act* (Canada);
  - c) *Ambulance Act* (Ontario);
  - d) Canadian Standards Association;
  - e) Underwriters Laboratories of Canada;
  - f) Compressed Gas Association;
  - g) Canadian General Standards Board;
  - h) American National Standards Institute; and
  - i) US National Institute of Occupational Safety and Health (NIOSH).



- 2.3 The installation of the equipment in an ambulance or emergency response vehicle shall:
- promote the safety of paramedics utilizing equipment; and
  - permit ease of accessibility for servicing, replacement, and adjustment of component parts and accessories with minimum disturbance to other components and systems.
- 2.4 Ambulance service operators shall ensure that all electrical medical equipment and accessories being operated, either on 110/120 volt (AC) or low voltage, have been approved or inspected for use by CSA or C-UL.

### **3.0 Modifications**

- 3.1 Modifications shall not be made that would adversely affect the safety or other performance characteristics of any piece of equipment. Documentation from the Original Equipment Manufacturer (OEM) must be kept on file confirming the acceptability of any modifications.
- 3.2 Any accessory components added to a piece of equipment (e.g. brackets, shelves, etc.) must be able to support a minimum of ten (10) times the weight of the component plus any item it is intended to hold or carry.

### **4.0 Equipment Testing and Maintenance**

- 4.1 All applicable medical equipment shall, as a minimum, be inspected and maintained in accordance with the Original Equipment Manufacturers (OEM) inspection, maintenance and quality assurance requirements.

### **5.0 Equipment Manuals**

- 5.1 Manufacturer's equipment manuals shall be readily available as local reference documents. These references will assist quality assurance personnel, management staff, paramedics and review teams in determining the appropriate use, maintenance and compliance of applicable medical equipment.

### **6.0 Materials**

#### **6.1 Latex**

Equipment used in an ambulance or emergency response vehicle should not contain latex, if possible.

#### **6.2 Hypoallergenic Materials**

Equipment should be hypoallergenic in all cases where the equipment comes into contact with the patient, where possible.

## **7.0 Definitions**

**AAMS** means the Association of Air Medical Services.

**AARC** means the American Association of Respiratory Care.

**AHA** means the American Heart Association.

**ANSI** means the American National Standards Institute.

**Approximately** means a range within 10% (plus or minus) of the specified figure.

**ASTM** means the American Society for Testing and Materials.

**CGA** means the Compressed Gas Association.

**CSA** means the Canadian Standards Association.

**C-UL** means the Underwriters Laboratories of Canada.

**Disposable** means a product that is designed for a single use or application.

**EHSB** means the Emergency Health Services Branch of the Ministry.

**ISO** means International Standards Organization.

**Ministry** means the Ontario Ministry of Health and Long-Term Care.

**NIOSH** means the United States National Institute for Occupational Safety and Health.

**Sterile** means free from bacteria.

**USP** means United States Pharmacopoeia.

**MOHLTC** means the Ontario Ministry of Health and Long-Term Care.

**MOL** means the Ontario Ministry of Labour.

*Part “A”*

*List 1*

**Land Ambulance/ERV  
Accessory Equipment**

### List 1(a) – Land Ambulance Accessory Equipment

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<b>Equipment Description</b>	<b>EHSB Standard No.</b>	<b>Minimum Quantity</b>
1. portable hand lights (with batteries) - Meets or exceeds CSA standard (C22.2 No. 12)	N/A	2
2. radio equipment: type and power, approved by the Director	N/A	1

### List 1(b) – ERV Accessory Equipment

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<b>Equipment Description</b>	<b>EHSB Standard No.</b>	<b>Minimum Quantity</b>
1. portable hand light (with batteries) - Meets or exceeds CSA standard (C22.2 No. 12)	N/A	1
2. radio equipment: type and power, approved by the Director	N/A	1

*Part “A”*

*List 2*

**Land Ambulance Patient Care  
Equipment**

## List 2 – Land Ambulance Patient Care Equipment

Equipment Description	EHSB Standard No.	Minimum Quantity
<b>Cots, Stretchers and Accessories</b>		
1. cot, lift assist <b>OR</b> cot, multi level, lift in	080 <b>OR</b> 085	1
2. infant restraint device	165	1
3. lifting chair	205	1
4. stretcher, adjustable break-away	345	1
5. stretcher, portable	355	1
<b>Immobilization Equipment</b>		
6. cervical collars, adult	070	2 each size <b>or</b> equivalent multi-size
7. cervical collars, pediatric		2 each size <b>or</b> equivalent multi-size
8. spinal board, quick connect	325	1
9. spinal immobilization extrication device	330	1
10. splint, multi purpose or malleable	335	4
11. splint, traction	340	1
<b>Kits</b>		
12. burn kit	035	1
13. first response kit	125	1
14. mass casualty incident kit	220	1
15. obstetrical kit	245	1
16. symptom relief kit	400	1

Equipment Description	EHSB Standard No.	Minimum Quantity
<b>Oxygen / Suction Equipment and Accessories</b>		
17. airways, nasopharyngeal (complete range of sizes to accommodate adult patients)	005	2 sets
18. airways, oropharyngeal (complete range of sizes - infant to large adult)	010	1 set
19. bag-valve-mask resuscitator, adult	015	1
20. bag-valve-mask resuscitator, pediatric	020	1
21. lubricant, water-based	N/A	4
22. nebulized medication delivery mask	235	2
23. oxygen cylinders, "D" size or equivalent volume	N/A	2
24. oxygen cylinder, "M" size	N/A	1
25. oxygen flowmeter, vehicle	250	1
26. oxygen mask, adult high concentration	255	1
27. oxygen mask, high concentration/low flow	260	2
28. oxygen mask, pediatric simple	265	2
29. oxygen nasal cannula	270	1
30. oxygen pressure regulator, vehicle (for use with "M" cylinder)	280	1
31. oxygen supply tubing	285	2
32. resuscitation mask, adult	310	1
33. resuscitation mask, pediatric	315	2
34. suction catheters (#10 F and #14 F)	360	2 each
35. suction tip, wide bore type	365	2
36. suction tip, Yankeur type	370	2
37. suction unit, collection container (Vehicle)	375	2
38. suction unit, tubing	390	2
39. suction unit, vehicle	395	1
<b>Cardiac Monitor/Defibrillator and Supplies</b>		
40. cardiac monitor/defibrillator (PCP)	045	1
41. cardiac monitor/defibrillator, defibrillation pads	050	2 sets of 2 pads
42. cardiac monitor/defibrillator, ECG cable	055	1
43. cardiac monitor/defibrillator, ECG monitoring electrodes	060	Sufficient to monitor a minimum of 2 patients
44. cardiac monitor/defibrillator, ECG paper	N/A	2 (includes 1 spare)
45. razor, disposable	N/A	2

Equipment Description	EHSB Standard No.	Minimum Quantity
<b>Wound Management / Patient Care Supplies</b>		
46. adhesive tape, medical	N/A	2
47. alcohol swab	N/A	10
48. bandage, conforming gauze roll	N/A	5
49. bandage, triangular	N/A	6
50. blood pressure cuff/manometer (manual), adult	025	1
51. blood pressure cuff/manometer (manual), adult XL	025	1
52. blood pressure cuff/manometer (manual), pediatric	030	1
53. cold pack	N/A	2
54. dressing, abdominal	N/A	4
55. dressing, pressure	N/A	4
56. eye pad	N/A	6
57. gauze pad	N/A	10
58. irrigation fluid	195	1000 ml total
59. scissors, paramedic	N/A	1
60. stethoscope	N/A	1 <b>or</b> personal issue
<b>Personal Protective Equipment</b>		
61. contaminated material containment bag	N/A	6
62. coveralls/gowns, disposable	090	4
63. eyewear, protective (safety)	115	2 <b>or</b> personal issue
64. gloves, non-sterile	130	10 pairs each size
65. gloves, safety	135	2 pairs <b>or</b> personal issue
66. hand rub, antiseptic	150	3
67. helmet, safety	155	2 <b>or</b> personal issue
68. particulate respirator mask	290	10
69. sharps container	320	1
70. surgical mask	N/A	4
71. vests, high visibility	415	2 <b>or</b> personal issue



Equipment Description	EHSB Standard No.	Minimum Quantity
<b>Blankets / Linens</b>		
72. blanket	N/A	2
73. blankets, disposable	N/A	2
74. pillow	N/A	2
75. pillow case	N/A	2
76. sheets	N/A	2
77. towel	N/A	4
<b>Miscellaneous</b>		
78. bed pan	N/A	1
79. emesis bag	N/A	4
80. tissues, facial	N/A	2 boxes
81. tissue, toilet	N/A	1 roll
82. urinal	N/A	1



*Part “A”*

*List 3*

**Emergency Response Vehicle (ERV)  
Equipment**

### List 3(a) - Emergency Response Vehicle Equipment – Responder

Equipment Description	EHSB Standard No.	Minimum Quantity
1. burn kit	035	1
2. cardiac monitor/defibrillator (PCP)	045	1
3. cardiac monitor/defibrillator, defibrillation pads	050	2 sets of 2 pads
4. cardiac monitor/defibrillator, ECG cable	055	1
5. cardiac monitor/defibrillator, ECG monitoring electrodes	060	Sufficient quantities to monitor a minimum of 2 patients
6. cardiac monitor/defibrillator, ECG paper	N/A	2 (includes 1 spare)
7. eyewear, protective (safety)	115	1 <b>or</b> personal issue
8. first response kit (fully stocked)	125	1
9. gloves, non-sterile	130	2 pairs each size
10. gloves, safety	135	1 pair <b>or</b> personal issue
11. helmet, safety	155	1 <b>or</b> personal issue
12. mass casualty incident kit	220	1
13. obstetrical kit	245	1
14. razor, disposable	N/A	1
15. spinal immobilization extrication device	330	1
16. splint, multi-purpose/malleable	335	2
17. splint, traction	340	1
18. symptom relief kit	400	1
19. vest, high visibility	415	1

### List 3(b) - Emergency Response Vehicle Equipment – Support/Command

<b>Equipment Description</b>	<b>EHSB Standard No.</b>	<b>Minimum Quantity</b>
1. eyewear, protective (safety)	115	1 <b>or</b> personal issue
2. first response kit (fully stocked)	125	1
3. gloves, safety	135	1 pair <b>or</b> personal issue
4. helmet, safety	155	1 <b>or</b> personal issue
5. mass casualty incident kit	220	1
6. vest, high visibility	415	1



*Part “A”*

*List 4*

**Land Ambulance  
Advanced Life Support  
Equipment and Drug List**

## List 4 – Land Ambulance Advanced Life Support Equipment and Drug List

In addition to equipment contained in the Land Ambulance Patient Care Equipment List (List 2), ambulances designated as Advanced Life Support (ALS) ambulances must carry the following equipment in the quantities listed.

ALS vehicles staffed with two (2) Advanced Care Paramedics (ACPs) or one (1) ACP working alone are exempt from having to carry a separate Symptom Relief Kit (#400).

Equipment Description	EHSB Standard No.	Minimum Quantity
1. <b>Advanced Airway Kit</b> Soft sided, maximum loaded weight 12.244 kilograms (27 lbs.)		1
chest drain valve	075	1
endotracheal tubes	095	1 each size <b>except</b> 7.0, 7.5 & 8.0 (2 each)
endotracheal tube, extender device	100	2
endotracheal tube, securing device	105	2
endotracheal tube, stylette	110	2
laryngoscope blades	200	1 each size
laryngoscope handle	200	2
lubricant, water-based	N/A	2
magill forceps	215	1
metered dose inhaler (MDI), aerosolization adapter	225	2
metered dose inhaler (MDI), valved holding chamber	230	2
qualitative end-tidal CO <sub>2</sub> detector	295	2
suction catheter	360	2 each size
thoracostomy device	410	2
2. cardiac monitor/defibrillator (ACP)	040	1
3. cardiac monitor/defibrillator accessories		
cardiac monitor/defibrillator, defibrillation pads	050	2 sets of 2 pads
cardiac monitor/defibrillator, ECG cable	055	1
cardiac monitor/defibrillator, ECG monitoring electrodes	060	sufficient quantities to monitor 2 patients



Equipment Description	EHSB Standard No.	Minimum Quantity
cardiac monitor/defibrillator, ECG paper	N/A	2 (includes 1 spare)
razor, disposable	N/A	2
<b>4. Intravenous and Drug Kit</b> Soft sided, maximum loaded weight 9.07 kilograms (20 lbs.). Must include separate and clearly identifiable protective cases for both controlled substances (e.g. opiates and benzodiazepines) and other medications.		1
<b>Intravenous Supplies:</b>		
alcohol preps	N/A	10
dressing, clear sterile	N/A	6
intraosseous (IO) needles	170	2 each size
intravenous catheters	175	2 each size
intravenous drip tubing	180	2
intravenous pressure infuser	185	1
intravenous solution (0.9% Sodium Chloride)	190	2 litres, any combination
needles	240	2 each size
saline flush solutions	N/A	2
syringe, medical	405	2 each size
tourniquet	N/A	2
<b>Medications:</b> The quantity of medications listed below is the minimum total amount to be carried in an ALS ambulance and includes medications carried in the Intravenous/Drug Kit and medications stored within the vehicle. A minimum of 50% of each medication listed (enough to treat one [1] patient) must be carried in the Intravenous/Drug Kit.		
adenosine (6 mg and/or 12 mg preparations)	N/A	36 mg total
ASA (81 mg/tablet)	N/A	6 tablets
atropine sulphate injection	N/A	2 mg
50% dextrose in water injection (25 G/50 ml)	N/A	4
diphenhydramine	N/A	100 mg
dopamine HCL solution (400 mg/250 ml)	N/A	2 bags
<b>OR</b>		<b>or</b>
dopamine HCL injection (200 mg/5 ml)		2
epinephrine 1:1000 (1 mg/1 ml)	N/A	10 mg
epinephrine 1:10,000 (1 mg/10 ml)	N/A	10 mg
glucagon	N/A	2 mg
glucose, oral (paste, tablets or other formulation) 15 G/dose	N/A	2

<b>Equipment Description</b>	<b>EHSB Standard No.</b>	<b>Minimum Quantity</b>
lidocaine injection <b>OR</b> amiodarone injection	N/A	600 mg <b>or</b> 600 mg
lidocaine spray (10 mg/spray) with 2 spray nozzles/canister	N/A	2
midazolam injection	N/A	20 mg
morphine sulphate injection	N/A	20 mg total or 10 mg if fentanyl is also carried
naloxone injection	N/A	4 mg
nitroglycerin, lingual aerosol (0.4 mg/dose) <b>OR</b> nitroglycerin, tablets (0.3 <b>or</b> 0.4 mg/dose)	N/A	2 canisters <b>or</b> 2 bottles
phenylephrine 0.5% <b>OR</b> xylometazoline 0.1%	N/A	2 bottles <b>or</b> 2 bottles
salbutamol inhalation aerosol (100 mcg/puff) <b>AND</b> salbutamol inhalation solution	N/A	2 canisters <b>and</b> 25 mg total
sodium bicarbonate injection (50 mEq/50 ml)	N/A	2

*Part “A”*

*List 5*

**Land Ambulance  
Auxiliary Equipment and Drug List**

## **List 5 – Land Ambulance Auxiliary Equipment and Drug List**

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This equipment is not mandatory, however if ambulance services decide to stock any of these items, it must meet the applicable description and/or standard.

<b>Equipment Description</b>	<b>EHSB Standard No.</b>	<b>Minimum Quantity</b>
1. automatic transport ventilator	A-905	N/A
2. continuous positive airway pressure unit	A-910	N/A
3. meconium aspirator adapter (endotracheal tube)	A-915	N/A
4. stretcher, folding	A-920	N/A
5. diphenhydramine	N/A	100 mg
6. fentanyl	N/A	200 mcg
7. furosemide	N/A	200 mg
8. dimenhydrinate	N/A	100 mg

*Part "B"*

**Equipment Standards**

## **Airway, Nasopharyngeal**

---

### **Minimum requirements:**

Nasopharyngeal airways must:

- be constructed of a soft, medical grade material;
- be for single patient use;
- be constructed to minimize kinking in use;
- be designed with the buccal end of the airway that is flanged and expected to fit against the external nares and the pharyngeal end shall be beveled;
- be provided in a range of sizes suited for use with adults;
- be compatible with all resuscitation masks meeting MOHLTC Standard #310;
- be individually packaged;
- have the size of the airway readily apparent on examination of the package;
- be packaged as sterile in properly sealed packages capable of maintaining the sterile integrity of the airway under normal conditions of shipping and storage. The word “Sterile” must be readily apparent on examination of the package.

### **Reference:**

ANSI Z79.3 Anaesthetic Equipment-Oropharyngeal and Nasopharyngeal Airways

## **Airway, Oropharyngeal**

---

### **Minimum requirements:**

Oropharyngeal airways must:

- be constructed of pliable, transparent, medical grade material;
- be for single patient use;
- be designed to keep the base of the tongue in a forward position while the airway is in use;
- be designed to minimize collapse when bitten by the patient;
- be a one-piece design;
- be available in sizes ranging from infant to large adult;
- be a single (Gudel) or double lumen (Berman) type;
- be designed to allow easy recognition and clearing of blockage of the lumen by secretions, blood, emesis, etc;
- be individually packaged;
- have the size of the airway readily apparent on examination of the package;
- be packaged as sterile in properly sealed packages capable of maintaining the sterile integrity of the airway under normal conditions of shipping and storage. The word “Sterile” must be readily apparent on examination.

### **Reference:**

ANSI Z79.3 Anaesthetic Equipment-Oropharyngeal and Nasopharyngeal Airways

## **Bag-Valve-Mask Resuscitator, Adult**

---

### **Minimum requirements:**

Bag-Valve-Mask resuscitators must include all of the following components:

- one (1) adult ventilation bag with a minimum capacity sufficient to adequately ventilate a large adult;
- one (1) non-rebreathing valve with single diaphragm;
- one (1) intake valve;
- one (1) way exhalation port that vents expired gases to the atmosphere;
- one (1) reservoir assembly with a capacity equal to or greater than the ventilation bag capacity.

Bag-valve-mask resuscitators must:

- maintain the normal dimensions, configuration and operational performance characteristics of all components, by resisting deterioration caused by ageing, storage conditions, temperature extremes and atmospheric conditions;
- be suitable for manual operation and meet the current AHA and AARC guidelines for resuscitation;
- be constructed of materials capable of being cleaned and disinfected, utilizing methods and agents normally and readily available to ambulance service operators when reusable equipment is utilized;
- be constructed of transparent medical grade materials;
- have a standard 15 mm inside diameter and 22 mm outside diameter fitting to attach to resuscitation masks and endotracheal tubes;
- admit air rapidly through the inlet valve and not allow it to escape unless the bag is compressed;
- have an integral oxygen stem attached to the inlet valve which must allow gas to flow into the intake valve when used with oxygen and vent excess oxygen to the atmosphere;
- have a non-rebreathing valve which includes a single diaphragm to prevent rebreathing of the patient's exhaled gas;
- allow the patient to breathe freely from the atmosphere should the device become occluded;
- resist jamming due to the presence of debris;
- be easy to disassemble and clean, with components designed to prevent incorrect assembly when reusable equipment is utilized;
- not exceed 10 ml valve dead space;
- have a dead space for the valve and mask not exceeding 175 ml;



**Bag-Valve-Mask Resuscitator, Adult (continued)**

- not allow the non-rebreathing valve to jam despite temperature extremes, moisture, or supplemented oxygen inflow as great as 15 litres per minute;
- supply oxygen concentrations in excess of 40% with supplemental oxygen when used without an oxygen reservoir;
- maintain an oxygen concentration not less than 100% with the reservoir assembly attached and supplied with an oxygen inflow of 12 litres per minute, a tidal volume of 500 ml and a cycle rate of 12 cycles per minute.

**References:**

AARC Guidelines, September 2004, Vol 49/9

AHA Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care, 2010

## **Bag-Valve-Mask Resuscitator, Pediatric**

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### **Minimum requirements:**

Bag-valve-mask resuscitators must include of the following components:

- one (1) child ventilation bag with a minimum capacity sufficient to adequately ventilate a pediatric patient;
- pop-off pressure relief valve;
- one (1) patient non-rebreathing valve with single diaphragm;
- one (1) intake valve;
- one (1) reservoir assembly with a capacity equal to or greater than the ventilation bag capacity.

Bag-valve-mask resuscitators must:

- maintain the normal dimensions, configuration and operational performance characteristics of all components, by resisting deterioration caused by ageing, storage conditions, temperature extremes and atmospheric conditions;
- be constructed of materials capable of being cleaned and disinfected, utilizing methods and agents normally and readily available to ambulance service operators when reusable equipment is utilized;
- be constructed of transparent medical grade materials;
- be suitable for manual operation and meet the current AHA and AARC guidelines for resuscitation;
- provide a minimum volume of 300 ml;
- be capable of re-expanding fully from a complete compression at least 50 times per minute;
- have a standard 15 mm inside diameter and 22 mm outside diameter fitting to attach to resuscitation masks and endotracheal tubes;
- admit air rapidly through the inlet valve and not allow it to escape unless the bag is compressed;
- have an integral oxygen stem attached to the inlet valve which must allow gas to flow into the intake valve when used with oxygen and vent excess oxygen to the atmosphere;
- have a non-rebreathing valve which includes a single diaphragm to prevent rebreathing of the patient's exhaled gas;
- allow the patient to breathe freely from the atmosphere should the device become occluded;

### **Bag-Valve-Mask Resuscitator, Pediatric (continued)**

- not allow the non-rebreathing valve to jam despite temperature extremes, moisture, or supplemented oxygen inflow as great as 15 litres per minute;
- have a valve assembly capable of releasing excess pressure within the bag;
- resist jamming due to the presence of debris;
- be easy to disassemble and clean, with components designed to prevent incorrect assembly when reusable equipment is utilized;
- not exceed 10 ml valve dead space;
- have a dead space for the valve and mask not exceeding 175 ml;
- supply oxygen concentrations in excess of 40% with supplemental oxygen when used without an oxygen reservoir;
- maintain an oxygen concentration not less than 100% with the reservoir assembly attached and supplied with an oxygen inflow of 12 litres per minute, a tidal volume of 300 ml and a cycle rate of 12 cycles per minute.

### **References:**

AARC Guidelines, September 2004, Vol 49/9

AHA Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care, 2010

## **Blood Pressure Cuff/Manometer (Manual), Adult**

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### **Minimum requirements:**

Adult blood pressure devices must:

- be constructed of materials capable of being easily cleaned and disinfected;
- have a cuff and closure system suitable for range of adult sizing/positioning;
- have a non pin-indexed pneumatic pressure gauge capable of displaying readings in the range of 0-300 mmHg;
- have an inflation bulb equipped with a pressure release control.

### **Reference:**

ISO 81060 – 1:2007

## **Blood Pressure Cuff/Manometer (Manual), Pediatric**

---

### **Minimum requirements:**

Pediatric blood pressure devices must:

- be constructed of materials capable of being easily cleaned and disinfected;
- have a cuff and closure system suitable for a range of pediatric sizing/positioning;
- have a non pin indexed pneumatic pressure gauge capable of displaying readings in the range of 0-300 mmHg;
- have an inflation bulb equipped with a pressure release control.

### **Reference:**

ISO 81060 – 1:2007

**Burn Kit****Minimum requirements:**

The contents of the Burn Kit must be sterile and contain the following:

<b>Equipment Description</b>	<b>EHSB Standard No.</b>	<b>Minimum Quantity</b>
bandage, conforming gauze roll	N/A	4
burn sheet, approximately 150 cm x 225 cm	N/A	1
burn sheets, approximately 37 cm x 37 cm	N/A	2
burn sheets, approximately 75 cm x 75 cm	N/A	2
gloves, sterile	140	2 pairs
irrigation fluid	195	Minimum 1000 ml

Burn sheet material must:

- be strong enough when wet or dry to not tear easily during application or removal;
- be non-adherent to the site of the injury, and must not readily decompose, polymerize, or react;
- not repel water;
- contain no known hazardous materials;
- be individually wrapped, lint free with the size marked clearly on the packaging.

The burn kit container must:

- be constructed of sturdy, crush-resistant material;
- be able to be safely stored and secured in the vehicle;
- be labeled “Burn Kit” with the contents itemized;
- be labeled with expiry date;
- be sealed in a way to ensure contents remain sterile.

## **Cardiac Monitor/Defibrillator (ACP)**

---

### **Minimum requirements:**

Cardiac monitor/defibrillators must:

- be capable of patient monitoring, defibrillation, and synchronized cardioversion;
- have monitoring technologies with diagnostic measurements for S-T segment analysis if used for 12-lead ECG acquisition;
- be programmable to energy settings for defibrillation and synchronized cardioversion as described in the current MOHLTC *Advanced Life Support Patient Care Standards*;
- be able to automatically analyze electrocardiographic rhythms to determine if defibrillation is required;
- be easy to clean and disinfect;
- be water-resistant;
- be capable of ‘3’, ‘4’ or ‘5’ lead ECG monitoring through electrodes and/or ‘2’ lead monitoring through defibrillation pads;
- have data collection capability and provide specific event summary reports;
- have a strip chart printer and ECG paper designed for the device;
- have internal operational checks;
- have individual, adjustable volume of QRS beeper, voice prompts, and other standard alerts;
- have both AC and DC power modules;
- have one spare battery;
- have a software configuration mode;
- have a diagnostic mode;
- be equipped with a carrying case.

### **References:**

ANSI/AAMI DF50:2003

ANSI/AAMI/ISO EC13:2002 (R) 2007

## **Cardiac Monitor/Defibrillator (PCP)**

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### **Minimum requirements:**

Cardiac monitor/defibrillators must:

- be capable of patient monitoring and defibrillation;
- have monitoring technologies with diagnostic measurements for S-T segment analysis if used for 12-lead ECG acquisition;
- be programmable to energy settings for defibrillation as described in the current *MOHLTC Advanced Life Support Patient Care Standards*;
- be able to automatically analyze electrocardiographic rhythms to determine if defibrillation is required;
- be easy to clean and disinfect;
- be water-resistant;
- be capable of ‘3’, ‘4’ or ‘5’ lead ECG monitoring through electrodes and/or ‘2’ lead monitoring through defibrillation pads;
- have data collection capability and provide specific event summary reports;
- have a strip chart printer and ECG paper designed for the device;
- have internal operational checks;
- have individual, adjustable volume of QRS beeper, voice prompts, and other standard alerts;
- have both AC and DC power modules;
- have one spare battery;
- have a software configuration mode;
- have a diagnostic mode;
- be equipped with a carrying case.

### **References:**

ANSI/AAMI DFSO:2003

ANSI/AAMI/ISO EC13:2002 (R) 2007



## **Cardiac Monitor/Defibrillator, Defibrillation Pads**

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### **Minimum requirements:**

Defibrillation pads must:

- be disposable;
- be soft and flexible;
- be able to function in a variety of temperature and environmental conditions;
- be constructed of a thin flexible conductor, protective polymer backing and a hydro-gel adhesive;
- provide delivery of current for defibrillation and cardioversion;
- be soft, flexible and oval-shaped to conform to body contours for larger surface contact and adhesion;
- serve various functions: ECG monitoring, synchronized cardioversion and defibrillation;
- be individually packaged;
- be labeled with size.

### **References:**

ANSI/AAMI DFSO:2003

ANSI/AAMI/ISO EC13:2002 (R) 2007

## **Cardiac Monitor/Defibrillator, ECG Cable**

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### **Minimum requirements:**

ECG cables must:

- provide '3', '4' or '5' lead ECG monitoring through electrodes;
- be easy to clean and disinfect;
- be water-resistant;
- be colour-coded and/or labeled to designate appropriate limb designation.

### **Reference:**

ANSI/AAMI EC53:2002 (R) 2007

## **Cardiac Monitor/Defibrillator, ECG Monitoring Electrodes**

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### **Minimum requirements:**

ECG monitoring electrodes must:

- be disposable;
- have fluid resistant adhesive;
- be capable of interfacing with ECG cable;
- have a conductive gel centre;
- provide for general purpose monitoring and diagnostics;
- be flexible and conform to body surfaces;
- be sealed in light resistant packaging.

### **Reference:**

ANSI/AAMI EC53:2002 (R) 2007

## **Cervical Collar**

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### **Minimum requirements:**

Cervical collars must:

- have sufficient padding at all points of contact with the patient to ensure patient comfort and prevent possible injury;
- have an anterior opening to allow visualization of the anterior area of the neck and palpation of the carotid pulse;
- incorporate a method (either as part of the collar or via a separate external device) for determination of the required collar size, prior to application;
- be x-ray translucent;
- be available in a variety of sizes to fit infants, children and adults while accommodating various neck types or be of a design such that a single collar can be adjusted to accommodate various neck sizes and types.

### **Reference:**

ASTM F1559-94 (2007)

## **Chest Drain Valve**

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### **Minimum requirements:**

Chest drain valves must:

- be disposable;
- let air and fluids out of the chest cavity, without any reflux back into the chest cavity;
- either connect directly to, or over, the thoracostomy device;
- be constructed of transparent material;
- be individually wrapped and sealed.

## **Cot, Lift Assist**

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### **Minimum requirements:**

Lift assist cots must:

- have the ability to be shortened as to facilitate its use in confined areas (e.g. elevators, tight corners, etc.);
- have an adjustable back rest that allows patient positioning from supine to fully sitting;
- have lockable side rails that can be positioned in such a way as to facilitate the safe movement of a patient on or off the cot;
- be manufactured with materials that can be easily cleaned and disinfected;
- be compatible with a cot retention system that is compliant with the performance requirements contained in the current version of the *Ontario Provincial Land Ambulance and Emergency Response Vehicle Standard*;
- have at least four (4) omni-directional wheels with solid rubber or equivalent tires; wheels mounted to ensure balanced weight distribution;
- be equipped with a patient securing system (MOHLTC Standard #300);
- have an integrated, or removable intravenous pole that securely locks in place when in the upright position.

### **Dimensions/Tolerances:**

- Loading wheel height to be sufficient to allow cot to be loaded into all ambulances approved for use in the Province of Ontario, without manually lifting the front end of the cot off the ground.
- Must be capable of carrying, as a minimum, the weight of a 90<sup>th</sup> percentile male.
- Physical dimensions of the cot bed must accommodate, as a minimum, a 90<sup>th</sup> percentile male.

### **Reference:**

Canadian Community Health Survey

## **Cot, Lift-in**

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### **Minimum requirements:**

Lift-in cots must:

- have the ability to be shortened as to facilitate its use in confined areas (e.g. elevators, tight corners, etc.);
- have an adjustable back rest that allows patient positioning from supine to fully sitting;
- have lockable side rails that can be positioned in such a way as to facilitate the safe movement of a patient on or off the cot;
- be manufactured with materials that can be easily cleaned and disinfected;
- be compatible with a cot retention system that is compliant with the performance requirements contained in the current version of the *Ontario Provincial Land Ambulance and Emergency Response Vehicle Standard*;
- have at least four (4) omni-directional wheels with solid rubber, or better tires; wheels mounted to ensure balanced weight distribution;
- be equipped with a patient securing system (MOHLTC Standard #300);
- have an integrated, or removable intravenous pole that securely locks in place when in the upright position.

### **Dimensions/Tolerances:**

- Must be capable of carrying, as a minimum, the weight of a 90<sup>th</sup> percentile male.
- Physical dimensions of the cot bed must accommodate, as a minimum, a 90<sup>th</sup> percentile male.

### **Reference:**

Canadian Community Health Survey

## **Coveralls/Gowns, Disposable**

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### **Minimum requirements:**

Coveralls/gowns must:

- be disposable;
- be elasticized at the wrists and ankles (for coveralls);
- cover the wearer front and back;
- have ties that are easily accessible for the user (for gowns);
- be fluid resistant to splashes and sprays;
- be available in sizes to accommodate wearer.

### **Reference:**

ANSI/ISEA 101-1996 standards



## **Endotracheal Tube**

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### **Minimum requirements:**

Endotracheal tubes must:

- be disposable;
- have a 15 mm compatible adapter with push and twist connections;
- be constructed of pliable, medical grade material that resists kinking and is transparent;
- be designed to allow for insertion via the oral or nasal pharynx into the trachea (nasotracheal tube has guide to control distal tip);
- allow a full magill curve;
- have a radiopaque line running the length of the tube;
- have an angled cut end with an extra hole or eye;
- have graduated measurement markers along the length of the tube;
- have a high-volume, low-pressure cuff (cuffed endotracheal tubes only);
- have a self-sealing cuff valve for inflating the cuff (cuffed endotracheal tubes only);
- have a visual indicator to confirm the cuff is inflated (cuffed endotracheal tubes only);
- be individually packaged and sealed;
- be sterile;
- be clearly labeled with size of endotracheal tube;
- be stocked in the following sizes:

#### **Non-cuffed Endotracheal Tubes**

Sizes: #3, #3.5, #4, #4.5, #5, #5.5

#### **Cuffed Endotracheal Tubes**

Sizes: #6, #6.5, #7, #7.5, #8

#### **Cuffed Nasotracheal Tubes**

Sizes: #6, #7, #8

### **Reference:**

ISO 5361:1999

## **Endotracheal Tube, Extender Device**

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### **Minimum requirements:**

Endotracheal tube extenders must:

- be disposable;
- have 15 mm compatible adapters;
- include 360° swivel head adapter and double swivel elbow;
- be made with corrugated tubing that can direct the weight of the airway tree off the end of an endotracheal tube;
- extend up to a maximum of 15 cm;
- have “push and twist” connections;
- be sterile.

### **Reference:**

ISO 5361:1999

## **Endotracheal Tube, Securing Device**

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### **Minimum requirements:**

Endotracheal tube securing devices must:

- be disposable;
- be capable of limiting the movement of an endotracheal tube to less than 1 cm in any direction;
- be adjustable to various sizes;
- be stocked clean.

## **Endotracheal Tube, Stylette**

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### **Minimum requirements:**

Endotracheal tube stylettes must:

- be disposable;
- cap or hoop at operator end to maintain desired length;
- be easy to telescope through an endotracheal tube;
- be made from semi-rigid, malleable material;
- have a soft distal tip;
- be individually wrapped in sterile packaging;
- be available in sizes appropriate to fit standard endotracheal tubes;
- have the size clearly visible on the package.

## **Eyewear, Protective (Safety)**

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### **Minimum requirements:**

Protective safety eyewear must:

- be capable of being cleaned and disinfected;
- be able to fit a variety of head sizes;
- contain scratch-resistant lenses;
- contain side-shields or be wrap-around style;
- be splash resistant;
- be capable of being used in conjunction with corrective lenses;
- be able to withstand high-impact collisions.

### **Reference:**

ANSI Z87.2-2003

## **Face Shield**

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### **Minimum requirements:**

Face shields must:

- cover the entire face of the user by extending from the top of the forehead to below the chin;
- be manufactured of a clear, anti-fog, scratch resistant material;
- be easy to clean and disinfect, or be disposable;
- be available in sizes that can accommodate a broad range of users, or be adjustable to accommodate a broad range of users.

### **Reference:**

ANSI Z287.1

**First Response Kit****Minimum requirements:**

Ambulance services may utilize one (1) or more carrying cases for the purpose of transporting the required oxygen, accessory and first aid equipment described in this standard. Each case used must meet the applicable minimum requirements for carrying cases described in this standard.

The case, or combination of cases, must contain the following oxygen and accessory equipment:

<b>Equipment Description</b>	<b>EHSB Standard No.</b>	<b>Minimum Quantity</b>
airway, oropharyngeal	010	1 each size
bag-valve-mask resuscitator, adult	015	1
blood pressure cuff/manometer (manual), adult	025	1
blood pressure cuff/manometer (manual), pediatric		1
oxygen cylinder, Transport Canada/Canadian Transport Commission approved	N/A	1
oxygen mask, adult high concentration	255	1
oxygen mask, pediatric simple	265	1
oxygen nasal cannula	270	1
oxygen pressure regulator	275	1
resuscitation mask, adult	310	1
stethoscope	N/A	<b>1 or personal issue</b>
suction unit, hand operated <b>OR</b> suction unit, portable electric	380 <b>OR</b> 385	1

**First Response Kit (continued)**

The case, or combination of cases, must contain the following first aid supplies:

<b>Equipment Description</b>	<b>EHSB Standard No.</b>	<b>Minimum Quantity</b>
bandage, conforming gauze roll	N/A	2
bandage, triangular	N/A	6
cervical collar	070	1 each size <b>or</b> multi-size
dressing, pressure	N/A	2
eye pad	N/A	2
gauze pad	N/A	4
gloves, non-sterile	130	2 pairs
hand rub, antiseptic	150	1
irrigation fluid	195	Minimum 1000 ml
tape, adhesive	N/A	2 rolls

All carrying cases must:

- allow for the contents to be contained while the kit is transported and during opening;
- not exceed 12.25 kg (27 lbs) when fully loaded;
- have a shoulder strap and carrying handle(s). If used to secure the case in the vehicle, carry handle(s) shall be capable of restraining a minimum of ten (10) times the weight of the bag and its contents;
- allow the kit to remain stable when placed on the ground or other flat surfaces and should not tip over easily;
- be easily cleaned and disinfected;
- remain water resistant under normal operating conditions.

Cases designed to carry oxygen equipment must:

- allow for continued provision of oxygen via both therapy and resuscitation adjuncts during transportation of the patient;
- safely restrain the oxygen cylinder when a force equal to twenty-five (25) times the weight of a fully loaded oxygen tank, is applied to the oxygen tank holder in any direction;
- protect the cylinder, regulator and gauge from damage when dropped on the corner nearest the oxygen tank valve from a height of 1.3 m (4 ft) to a concrete surface.



## **Gloves, Non-sterile**

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### **Minimum requirements:**

Non-sterile gloves must be:

- single use, disposable;
- manufactured of medical grade material;
- ambidextrous;
- powder-free;
- latex free;
- supplied in sizes to accommodate the hand size of various users.

### **Reference:**

ISO 11193-2:2006

## **Gloves, Safety**

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### **Minimum requirements:**

Safety gloves must:

- be constructed of a tear-resistant material;
- have a minimum 10 cm cuff;
- be flame and heat resistant;
- be fluid resistant to splash and splatter of blood and infectious materials;
- be available to fit a wide range of hand sizes.

### **Reference:**

ANSI/ISEA 105-2005

## **Gloves, Sterile**

---

### **Minimum requirements:**

Sterile gloves must be:

- single use, disposable;
- manufactured of medical grade material;
- ambidextrous;
- powder-free;
- supplied in sizes to accommodate the hand size of various users;
- packaged as sterile in properly sealed packages capable of maintaining the sterile integrity of the gloves under normal conditions of shipping and storage;
- clearly labeled with the word “sterile”.

### **Reference:**

ISO 10282

## **Glucometer**

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### **Minimum requirements:**

Glucometers must:

- be small and portable;
- be battery powered;
- provide results within 10 seconds of starting test;
- be able to provide results with a minimal blood sample (approx. 0.3 ul);
- have an easily readable display;
- be able to have quality control tests applied to device;
- have available control solutions for quality control testing;
- have a functional error range not exceeding +/- 15%.

### **References:**

ISO 15197:2003

Diabetes Care (2000) 23:1143 – 1148

## **Hand Rub, Antiseptic**

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### **Minimum requirements:**

Antiseptic hand rub must be:

- a minimum of 99.9% effective against a broad range of bacteria (including MRSA and VRE) using a minimum of 2.5 ml of solution per 15 second application;
- alcohol based (isopropanol or ethanol) - minimum concentration 60%;
- available in personal size containers.

### **Reference:**

Infection Prevention and Control  
Best Practices Manual for Land Paramedics  
Version 1.0 – March 2007

## **Helmet, Safety**

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### **Minimum requirements:**

Safety helmets must:

- be constructed of crush-resistant material;
- have a removable liner unless the helmet is personal issue;
- adjustable to fit a variety of head sizes;
- have a chin strap;
- have a face shield that is scratch and impact resistant;
- meet or exceeds applicable CSA standards.

### **References:**

ANSI Z89.1 – 2003 for type II safety helmets

ANSI Z87.1 – 2003 for high impact lenses

## **Hydrophobic Submicron Filter**

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### **Minimum requirements:**

Hydrophobic submicron filters must:

- be for single patient use and disposable;
- be supplied clean and individually packaged;
- have a viral and bacterial filtration efficiency of at least 99.99%;
- have ISO Standard 15 mm inside diameter and 22 mm outside diameter fittings;
- be available in sizes that are appropriate for adult, pediatric and infant applications.

### **Reference:**

ISO 23328-1:2003

## **Infant Restraint Device**

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### **Minimum requirements:**

Infant restraint devices must be:

- easy to clean and disinfect;
- constructed with one-piece webbing straps with quick-release buckles which securely attach the device to the ambulance cot frames at the minimum of three points;
- constructed with a five-point harness system that consists of shoulder, chest, and crotch restraints that secure with a single, quick release buckle. All restraints shall be fully adjustable;
- able to be stored and secured safely in an ambulance;
- compatible for use with cots carried in the ambulance;
- capable of accepting additional head and body support to ensure patient security;
- meet or exceed CSA standards.

### **Reference:**

AAMS Pediatric Restraint Position Paper, October 2007.



## **Intraosseous (IO) Needle**

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### **Minimum requirements:**

Intraosseous needles must:

- be disposable after one use;
- be available in sizes appropriate for use in neonates, infants, and children;
- have a beveled needle with the exact gauge outside diameter that is capable of boring through a bone;
- have a passageway through the needle to facilitate infusion of fluids and medication;
- have a rigid needle with removable inner stylet design;
- have a handle that provides an adequate grip;
- have a leak-proof twist-lock fitting to attach syringes or IV tubing;
- be sterile.

## **Intravenous Catheter**

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### **Minimum requirements:**

Intravenous catheters must:

- be disposable after one use;
- be available in sizes to support the administration of approved medications and solutions in all patient populations;
- have an “over the needle” catheter design with the exact gauge outside diameter;
- have beveled-end needles;
- be supplied with a protective plastic sheath;
- have an easy identifiable label and/or coding system (i.e. colour) to indicate size;
- have a leak-proof twist-lock fitting to attach syringes or IV tubing;
- be sterile.

### **Reference:**

ISO 10555-5:1996

## **Intravenous Drip Tubing**

---

### **Minimum requirements:**

Intravenous drip tubing must:

- be for single use only and disposable;
- have a minimum of two (2) “Y” medication ports;
- include an administration spike to access burette port;
- include a roller clamp with groove to adjust rate;
- be gravity dependant tubing;
- have a male luer lock adapter;
- be compatible for use with drugs or solutions;
- include a slide clamp / Robert clamp (occlusion clamp) safety clamp;
- have a soft drip chamber;
- be constructed with transparent material;
- be individually packaged;
- be labeled “Sterile”;
- be labeled with size number.

## **Intravenous Pressure Infuser**

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### **Minimum requirements:**

Intravenous pressure infuser bags must:

- have an infusion sleeve for an intravenous solution bag that can be pressurized to increase flow rate;
- have a pressure limiter to prevent over inflation;
- have a pressure gauge that is easy to read in low-light conditions;
- be made of material that permits visualization of the IV solution;
- be capable of attaching to an IV pole while securing the intravenous solution;
- be capable of rapid deflation;
- be easy to clean and disinfect, or be disposable.

## **Intravenous Solution (0.9% Sodium Chloride)**

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### **Minimum requirements:**

Intravenous solutions must:

- be disposable after one use;
- be a physiological solution of 0.9% Sodium Chloride, containing 154 mEq/L of sodium<sup>+</sup> and chloride;
- have at least one sealed medication port;
- have a sealed drip set attachment port;
- be supplied in a sealed double bag;
- have easily readable volume calibration;
- be contained in material that is transparent;
- be sterile;
- be labeled with volume enclosed;
- have expiry date clearly indicated on the package.

### **Reference:**

ISO 15747:2003

## **Irrigation Fluid**

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### **Minimum requirements:**

Irrigation fluid includes USP approved Sterile Saline or Sterile Water.

If in a bottle, the bottle must:

- have a leak-resistant closure;
- be labelled “For Irrigation Purposes or Injection Purposes Only”.

If in a bag, the bag must be:

- double-bagged;
- labeled “For Irrigation or Injection Purposes Only”.

### **Reference:**

The United States Pharmacopeia (USP)

## **Laryngoscope, Handle & Blades**

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### **Minimum requirements:**

Laryngoscope handles & blades must:

- possess a lock fitting if the blade and handles are separate;
- be available in sizes to accommodate patients from infant to large adult;
- be made of material that can easily be cleaned and disinfected, or be disposable;
- have a textured, non-slip surface on the handle;
- have an energy source (e.g. battery).

### **Reference:**

ISO 7376:2003

## **Lifting Chair**

---

### **Minimum requirements:**

Lifting chairs must:

- be manufactured with materials that can be easily cleaned and disinfected;
- have non-slip handgrips on all carrying handles;
- have wheels, or tracks, or other method to roll the device;
- have patient securing straps (MOHLTC Standard #210).

### **Dimensions/Tolerances**

- Must be capable of carrying, as a minimum, the weight of a 90<sup>th</sup> percentile male.
- Physical dimensions of the lifting chair to accommodate, as a minimum, a 90<sup>th</sup> percentile male.

### **References:**

ISO 7176-24:2004

Canadian Community Health Survey



## **Lifting Chair, Restraining Straps**

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### **Minimum requirements:**

The lifting chair restraining system must:

- consist of two (2) quick release press mechanism “Tang & Receiver” assemblies, [one (1) set to secure the chest/torso, attached to the chair back, one (1) set attached to the seat, to secure patient’s upper legs];
- be constructed of materials that are easily cleaned and disinfected, minimum two inches in width;
- have a minimum extended Tang and strap length of 114 cm (45 inches);
- have a minimum extended Receiver and strap length of 38 cm (15 inches);
- be capable of restraining, as a minimum, the weight of a 90<sup>th</sup> percentile male.

### **References:**

ISO 7176-24:2004

Canadian Community Health Survey

## **Magill Forceps**

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### **Minimum requirements:**

Magill forceps must:

- be made out of corrosion resistant medical grade stainless steel or plastic;
- possess a bent blunt tip forcep;
- have an eye on the blunt end with a ridged area on the facing surface areas;
- be designed to conform to adult and pediatric anatomy;
- reach the base of the hypopharynx under direct laryngoscopy;
- be easy to clean and disinfect, or be disposable.

### **Reference:**

ASTM F1638-95(2008) E1

**Mass Casualty Incident Kit****Minimum requirements:**

The Mass Casualty Incident Kit must contain the following:

<b>Equipment Description</b>	<b>EHSB Standard No.</b>	<b>Minimum Quantity</b>
light sticks	N/A	6
markers, permanent ink	N/A	2
multi-casualty incident (MCI) reference card	N/A	1
site co-ordinator vest, MOL compliant	N/A	1
Transport Canada Emergency Response Guidebook	N/A	1
triage tags	N/A	50
vests, high visibility	415	3

The above components must be contained in a readily identifiable kit.

## **Metered Dose Inhaler (MDI) Aerosolization Adapter**

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### **Minimum requirements:**

MDI adapters must:

- include a 15 mm compatible adapter for use with endotracheal tubes and bag-valve-mask respirators;
- accept plastic or metal tipped Metered Dose Inhalers;
- be designed to optimize drug delivery;
- provide a direct medication route;
- be capable of being used within an ETT circuit;
- be rigid or collapsible;
- be constructed of transparent materials;
- be disposable;
- be individually packaged and sealed;
- be sterile.

### **Reference:**

ISO 5361:1999

## **Metered Dose Inhaler (MDI), Valved Holding Chamber**

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### **Minimum requirements:**

MDI valved holding chambers must:

- have a universal MDI adapter;
- have a size-optimized chamber;
- have a standard 22 mm outside diameter for tracheal tube connections;
- have a valve system and exhaust ports to prevent exhaled air from entering the chamber;
- have adult and pediatric silicone masks or mouthpiece;
- be constructed of crush-resistant polymer material;
- be easy to clean and disinfect.

### **Reference:**

ISO/DIS 27427:2009

## **Nebulized Medication Delivery Mask**

---

### **Minimum requirements:**

The nebulized medication delivery mask must:

- be disposable;
- be constructed of transparent medical grade material;
- be an “under-chin” style;
- be available in adult and pediatric sizes;
- include oxygen supply tubing (MOHLTC Standard #285);
- be individually packaged;
- be capable of nebulizing liquids at a rate of 1 ml per minute at 6 litres per minute of oxygen flow;
- have a detachable medication chamber that holds a minimum of 5 millilitres of fluid.

### **Reference:**

ISO/DIS 27427:2009

## **Needles**

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### **Minimum requirements:**

Needles must:

- be disposable after one use;
- be provided in a minimum of three sizes (#18, #22, and #25 F);
- have blunt tip (non-coring) for #18 F;
- have beveled end needles with the exact gauge outside diameter for #22 F and available in 1½ inch size;
- have beveled end needles with the exact gauge outside diameter for #25 F and available in 1 inch and ⅝ inch sizes;
- be supplied with a protective plastic sheath;
- have an easy identifiable label and/or coding system (i.e. colour) to indicate size;
- have a leak-proof twist-lock fitting to attach syringes or IV tubing;
- be sterile.

### **Reference:**

ISO 9626:1991

**Obstetrical Kit****Minimum requirements:**

The obstetrical kit must contain the following (items that must be packaged sterile are identified):

<b>Equipment Description</b>	<b>EHSB Standard No.</b>	<b>Minimum Quantity</b>
alcohol preps	N/A	2
blanket, receiving, heat retaining, 100% cotton flannelette, white, with no tattered edges	N/A	1
forceps, sterile, disposable	N/A	2 pairs
gauze pads, sterile (minimum 10 cm x 10 cm)	N/A	1
gloves, sterile	140	2 pairs
incontinent pad, sterile and disposable (approximately 60 cm x 120 cm)	N/A	1
obstetrical pad, sterile	N/A	1
obstetrical towelettes	N/A	2
plastic bags	N/A	2
scissors, blunt-tipped, sterile, disposable	N/A	1 pair
suction device (manual) meeting current AHA guidelines for neonatal suctioning	N/A	1
towels, disposable	N/A	4
twist ties (to secure bags)	N/A	2
umbilical cord clamps, sterile	N/A	2

The Obstetrical Kit container must be:

- constructed of sturdy, crush-resistant material;
- able to be safely stored and secured in the vehicle;
- labeled “Obstetrical Kit” with the contents itemized;
- labeled with expiry date;
- sealed in a way to ensure contents remain clean and sterile, where applicable.

**Reference:**

AHA Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care, 2010



## **Oxygen Flowmeter, Vehicle**

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### **Minimum requirements:**

The wall oxygen flowmeter must:

- comply with current CGA specification where not otherwise detailed within these minimum requirements;
- fit within the ambulance conversion design;
- be constructed of materials compatible with high pressure oxygen use;
- have input connections that conform to current international standards and be female 9/16 inch diameter index safety system (DISS) hand or wrench-tight style;
- ensure any additional working pressure outlets are equipped with (9/16 inch) DISS “check-valve” fitting to prevent the escape of oxygen should the fitting not be connected to ancillary equipment;
- be backpressure compensated and calibrated to provide a minimum 0 - 15.0 litre per minute flow range. “Flush” flow must be at least 75 litres per minute. Flow rates must be maintained with a +/- 10% band of tolerance across the operating range of the cylinder (2,200 psi – 500 psi);
- have the flowmeter free flow outlet be male 9/16 inch DISS located at the bottom of the Thorpe tube, and compatible with commercially available “barb-style” nipple adapters and humidifiers;
- include an operator’s manual and a manufacturer’s test sheet indicating final performance values.

## **Oxygen Mask, Adult High Concentration**

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### **Minimum requirements:**

Adult high concentration oxygen masks must:

- be disposable;
- be constructed of transparent medical grade material;
- be individually wrapped;
- include oxygen supply tubing (MOHLTC Standard #285);
- provide high concentration oxygen (minimum 90%) at a 10-15 litres per minute flow rate of oxygen.

### **Reference:**

ISO 15001:2003

## **Oxygen Mask, High Concentration/Low Flow**

---

### **Minimum requirements:**

High concentration/low flow oxygen masks must:

- be disposable;
- be constructed of transparent medical grade materials;
- be individually wrapped;
- be outfitted with or be capable of being outfitted with a hydrophobic submicron filter on the exhaust port;
- include oxygen supply tubing (MOHLTC Standard #285);
- be capable of providing a minimum oxygen concentration of 80% with an oxygen flow rate of 8 litres per minute or less.

### **Reference:**

ISO 15001:2003

## **Oxygen Mask, Pediatric Simple**

---

### **Minimum requirements:**

Pediatric simple oxygen masks must:

- be disposable;
- be constructed of transparent medical grade material;
- be individually wrapped;
- include oxygen supply tubing (MOHLTC Standard #285);
- provide minimum oxygen concentrations of 40-60%, at an 8-10 litres per minute flow rate of oxygen.

### **Reference:**

ISO 15001:2003

## **Oxygen Nasal Cannula**

---

### **Minimum requirements:**

Oxygen nasal cannulas must be:

- disposable;
- constructed of crush-resistant and kink-resistant medical tubing;
- individually packaged;
- a minimum of 2 m (7 ft) in length or compatible for use with oxygen supply tubing (MOHLTC Standard #285);
- capable to provide a range of oxygen concentrations between 24% and 44%, at oxygen flow rates of between 2 to 6 litres per minute.

### **Reference:**

ISO 15001:2003

## **Oxygen Pressure Regulator, First Response Kit**

---

### **Minimum requirements:**

Oxygen pressure regulators must:

- reduce the operating pressure from the high (2,200+ psi) pressure in an oxygen cylinder, to the consistent static working pressure necessary for the oxygen delivery equipment being used;
- be constructed of materials that are CGA approved for high pressure oxygen use;
- have input connections that conform to CGA standards and be “pin-indexed” for oxygen;
- have a pin indexed yoke attachment that is a “T-Bar” handle or knob secured to the regulator body;
- have at least one working pressure (55 psi) outlet, capable of supporting an automatic transport ventilator;
- ensure that where applicable, additional working pressure (55 psi) outlets are equipped with 9/16 inch diameter index safety system (DISS) “check-valve” fitting to prevent the escape of oxygen when not connected to other equipment;
- have a cylinder contents gauge marked in both “psi” and “bar” values and provide a clearly visible indicator of the need to refill the cylinder;
- be equipped with a protective “gauge guard”;
- provide output performance from the 9/16 inch DISS outlet(s) with a minimum output pressure of 45 psi at a 100 litre per minute flow rate across the operating range of the cylinder (2,200 psi - 500 psi);
- have a therapy free flow control providing flow rates between 2.0 – 15.0 litres per minute (or equivalent). Flow rates must be maintained within a +/- 10% band of tolerance across the operating range of the cylinder (2,200 psi - 500 psi);
- have a therapy free flow outlet that is a “barb-style” which is compatible with oxygen supply tubing meeting MOHLTC Standard #285.

NOTE: Oxygen regulators intended for aeromedical use must only be used in conjunction with devices intended and tested for the aeromedical environment.

### **References:**

ASTM G175-03

CGA

## **Oxygen Pressure Regulator, Vehicle**

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### **Minimum requirements:**

Oxygen pressure regulators must:

- be capable of reducing the operating pressure from the high (2,200+ psi) pressure in an oxygen cylinder, to the consistent static working pressure necessary for the oxygen delivery equipment being used;
- fit into the ambulance conversion design;
- be constructed of materials that are CGA approved for high pressure oxygen use;
- have input connections that conform to current international standards and have a CGA 540 nut and stem fitting for oxygen;
- have at least one working pressure (55 psi) outlet, equipped with a 9/16 inch DISS male outlet. No check valve is required;
- have the cylinder contents gauge marked in both “psi” and “bar” values;
- provide output performance from the 9/16 inch DISS outlet(s) that maintain a minimum output pressure of 45 psi at a 100 litre per minute flow rate across the operating range of the cylinder (2,200 psi – 500 psi);
- include an operator’s manual and a manufacturer’s test certificate indicating final performance values.

### **References:**

ASTM G175-03

CGA

## **Oxygen Supply Tubing**

---

### **Minimum requirements:**

Oxygen supply tubing must be:

- disposable;
- constructed of crush-resistant and kink-resistant medical grade material;
- a minimum of 2 m (7 ft) in length;
- able to facilitate connection with oxygen delivery supply and delivery devices;
- able to ensure unimpeded delivery of oxygen at a flow rate of 15 litres per minute to the patient.

### **Reference:**

ISO 15001:2003



## **Particulate Respirator Mask**

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### **Minimum requirements:**

Particulate respirator masks must:

- be disposable;
- have a system to affix the mask to the user's face that provides an adequate facial seal;
- be fluid resistant to splash and splatter of blood and infectious materials;
- fit a wide range of face sizes;
- have a filter efficiency level of 95% or greater against particulate aerosols free of oil in a size range of .1 to >10 microns.

### **Reference:**

NIOSH Standard 42 CFR 84 or better

## **Qualitative End-Tidal CO<sub>2</sub> Detector**

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### **Minimum requirements:**

Qualitative ETCO<sub>2</sub> detectors must:

- be disposable;
- have both a 15 mm inlet and 15 mm outlet;
- be capable of indicating the presence of CO<sub>2</sub> to assist in the confirmation of ETT tube placement;
- measure ETCO<sub>2</sub> on a breath to breath response;
- be packed sterile.

## **Restraining Straps, Cots & Folding Stretcher**

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### **Minimum requirements:**

The complete restraining system must:

- consist of four (4) complete two (2) piece “Tang & Receiver” assemblies, [i.e. two (2) shoulder, one (1) waist, and one (1) leg];
- be constructed of materials that are easily cleaned and disinfected, minimum two (2) inches in width;
- employ the automotive style “Tang & Receiver” fastening device configuration (quick release press mechanism);
- have a minimum extended Tang and strap length of 114 cm (45 inches);
- have a minimum extended Receiver and strap length of 38 cm (15 inches);
- be capable, as a system, of restraining, as a minimum, ten (10) times the weight of a 90<sup>th</sup> percentile male.

### **Reference:**

Canadian Community Health Survey

## **Restraining Straps, Adjustable Break-away Stretcher & Spinal Board**

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### **Minimum requirements:**

The complete restraining system must:

- consist of four (4) complete two (2) piece “Tang & Receiver” assemblies, [i.e. two (2) shoulder, one (1) waist and one (1) leg];
- be constructed of materials that are easily cleaned and disinfected, minimum two (2) inches in width;
- have a minimum extended Tang and strap length of 122 cm (48 inches);
- have a minimum extended Receiver and strap length of 33 cm (13 inches);
- be capable of restraining, as a minimum, the weight of a 90<sup>th</sup> percentile male;
- have quick release hooks that:
  - are corrosion resistant and have a spring loaded snap closure;
  - must fit over a maximum 10 mm (3/8 inch) rod;
  - have a 360° swivel capability.

### **Reference:**

Canadian Community Health Survey

## **Resuscitation Mask, Adult**

---

### **Minimum requirements:**

Adult resuscitation masks must:

- be constructed of transparent, flexible medical grade materials;
- have an ISO Standard 15 mm inside diameter and 22 mm outside diameter connection compatible with the oxygen delivery system;
- be of a design that will seal effectively in a wide variety of facial shapes and sizes;
- have a valve capable of allowing the introduction of additional air or to remove air from the cuff if equipped with an inflatable cuff;
- be capable of being cleaned and disinfected, or be disposable.

### **Reference:**

ISO 15001:2003

## **Resuscitation Mask, Pediatric**

---

### **Minimum requirements:**

Pediatric resuscitation masks must:

- be constructed of transparent, flexible medical grade material;
- be available in pediatric and infant sizes that will seal effectively in a wide variety of facial shapes and sizes;
- have an ISO Standard 15 mm inside diameter and 22 mm outside diameter connection compatible with the oxygen delivery system;
- have a valve capable of allowing the introduction of additional air or to remove air from the cuff if equipped with an inflatable cuff;
- be capable of being cleaned and disinfected, or be disposable.

### **Reference:**

ISO 15001:2003

## **Sharps Container**

---

### **Minimum requirements:**

The sharps container must:

- be of puncture resistant construction;
- be manufactured of materials capable of being incinerated;
- have temporary and permanent lid closure capability;
- have tapered slots and bevelled edge openings that allow for safe disposal of needles, plus include one all-purpose opening;
- be labeled with a “Biohazard” label, the colour of which is consistent with current legislative requirements;
- not contain colouring with heavy metals.

### **Reference:**

ISO/NP 23908-3

## **Spinal Board, Quick Connect**

---

### **Minimum requirements:**

The quick connect spinal board must:

- be constructed of material able to support a minimum 182 kg (400 lbs) weight when supported at ends;
- have a surface finish that can be cleaned and disinfected;
- be capable of carrying, as a minimum, the weight of a 90<sup>th</sup> percentile male;
- be capable of allowing easy access to handholds with minimum pinch hazards;
- have each anchor pin for the straps rated at a minimum pull strength of 136 kg (300 lbs);
- be capable for use with restraining straps (MOHLTC Standard #305);
- have a sufficient number of hand slots to be able to lift the spinal board safely;
- have all edges, including hand slots smooth and impervious to workplace fluids.

### **Dimensions/Tolerances:**

Physical dimensions of the spinal board must accommodate, as a minimum, a 90<sup>th</sup> percentile male.

### **References:**

ASTM F1557-94(2007)

Canadian Community Health Survey



## **Spinal Immobilization Extrication Device**

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### **Minimum requirements:**

The spinal immobilization extrication device must:

- be of a wrap-around design which facilitates safe patient handling;
- be constructed of materials that are easily cleaned and disinfected;
- ensure vertical rigidity;
- be fully adjustable to accommodate the maximum scope and array of field applications;
- be capable of carrying, as a minimum, the weight of a 90<sup>th</sup> percentile male;
- be x-ray translucent;
- incorporate lifting handles on each side.

### **References:**

ASTM F1556-94(2007)

Canadian Community Health Survey

## **Splint, Multi-purpose/Malleable**

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### **Minimum requirements**

A multi-purpose splint must:

- be capable of being cleaned and disinfected, or be disposable;
- be constructed of rigid material and have rounded edges;
- be adjustable for arm or lower leg use in adults and arm or leg use in children;
- be x-ray translucent;
- be individually packaged with easy to understand instructions for use;
- under normal use conditions, support and stabilize injured extremities and maintain alignment in as near neutral position as possible, or maintain the position of splinting.

A malleable splint must:

- be capable of being cleaned and disinfected, or be disposable;
- be constructed of a semi-rigid material that will conform when applied to a patient's extremity, shall provide rigid support;
- be x-ray translucent;
- be individually packaged with easy to understand instructions for use;
- under normal use conditions, support and stabilize injured extremities and maintain alignment in as near neutral position as possible, or maintain the position of splinting.

### **Reference:**

ASTM F1555-94 (2007)

## **Splint, Traction**

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### **Minimum requirements:**

The traction splint must:

- be compatible with spinal boards and cots/stretchers carried in the ambulance;
- be of a size and shape that can be safely and easily stored in the ambulance;
- have a mechanism that allows the paramedic to determine and document exactly how much traction is being applied;
- automatically adjust to degree of muscle spasm (counter force) in the leg in response to the traction being applied (dynamic traction);
- allow for orthopedic and vascular assessment of a patient when applied;
- be easily cleaned and disinfected.

### **Reference:**

ASTM F1555-94 (2007)

## **Stretcher, Adjustable Break-away**

---

### **Minimum requirements:**

The break-away stretcher must:

- be adjustable to accommodate patients of various sizes;
- be equipped with quick connect pins with an individual pull rating of 136 kg (300 lbs) allowing the use of restraining straps (MOHLTC Standard #305);
- capable of being safely stored in an ambulance;
- have a surface that cradles the patient providing support and minimizing lateral movement;
- be capable of carrying, as a minimum, the weight of a 90<sup>th</sup> percentile male;
- be manufactured with materials that can be easily cleaned and disinfected.

### **Dimensions/Tolerances:**

The physical dimensions of the adjustable break-away stretcher must accommodate, as a minimum, a 90<sup>th</sup> percentile male.

### **Reference:**

Canadian Community Health Survey

## **Stretcher, Portable**

---

### **Minimum requirements:**

The portable stretcher must:

- include a transport surface of approved medical grade material that can accommodate the size of the 90<sup>th</sup> percentile male and have pole channels or handgrips;
- be capable of carrying, as a minimum, the weight of a 90<sup>th</sup> percentile male;
- have poles constructed of minimum 2.5 cm diameter tubing with non-slip handles at each end (if using poles);
- have pole ends with reduced diameter and spring loaded pin locking mechanism. Poles to be minimum 188 cm (74 inches) long assembled, minimum 101.5 cm long disassembled (if using poles);
- be manufactured with materials that can be easily cleaned and disinfected.

### **Dimensions/Tolerances:**

The physical dimensions of the portable stretcher must accommodate, as a minimum, a 90<sup>th</sup> percentile male.

### **Reference:**

Canadian Community Health Survey

## **Suction Catheter**

---

### **Minimum requirements:**

Suction catheters must:

- be for single patient use and be disposable;
- be constructed of medical grade material;
- have a finger control valve to facilitate intermittent suctioning;
- be individually packaged;
- be available in the various sizes to effectively suction patients of varying sizes, (#10 F and #14 F);
- be approximately 50 – 55 cm in length;
- be packaged as sterile in properly sealed packages capable of maintaining the integrity of the suction catheter under normal conditions of shipping and storage. The word “Sterile” must be readily apparent on examination of the package.

### **Reference:**

ISO 8836:2007

## **Suction Tip, Wide Bore (Oral)**

---

### **Minimum requirements:**

Wide bore (oral) suction tips must:

- be disposable;
- be constructed of appropriate medical grade material;
- be a minimum 15 cm long;
- have an internal diameter of approximately 1 cm at the distal end of the tip, and an external diameter at the proximal end to facilitate attachment of suction tubing;
- have a thumb activated suction control port near the proximal end;
- have a flexible and fluted distal end to facilitate safe suctioning;
- be able to safely and efficiently clear the oropharynx of large particulate matter and other types of thick emesis and minimize risk of damage to the teeth and the soft tissues of the mouth and oropharynx;
- be supplied clean and packaged to maintain the integrity of the suction catheter under normal conditions of shipping and storage.

### **Reference:**

ISO 8836:2007

## **Suction Tip, Yankeur**

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### **Minimum requirements:**

Yankeur suction tips must:

- be disposable and individually packaged;
- be constructed of rigid, transparent, medical grade material;
- have a thumb activated suction control port near the proximal end;
- have a main inlet port at the distal end, with an opening of not less than 5 mm;
- have an external diameter at the proximal end to facilitate attachment of suction tubing;
- be able to safely and efficiently clear the oropharynx of mucus, fluid, liquid emesis and small particulate matter and minimize risk of damage to the teeth and the soft tissues of the mouth and oropharynx;
- be packaged as sterile in properly sealed packages capable of maintaining the integrity of the suction catheter under normal conditions of shipping and storage. The word “Sterile” must be readily apparent on examination of the package.

### **Reference:**

ISO 8836:2007



## **Suction Unit, Collection Container (Vehicle)**

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### **Minimum requirements:**

The collection container must:

- be compatible with vehicle mounted suction units currently in use in land ambulance vehicles;
- be constructed of materials and designed to ensure no spillage or leakage of suctioned fluids or matter;
- provide a sealed, airtight container for transport of potentially biohazardous material;
- be disposable or allow cleaning and disinfection of all components that are not disposable.

### **Reference:**

ISO 8836:2007

## **Suction Unit, Hand Operated**

---

### **Minimum requirements:**

Hand operated suction units must:

- be capable of rapid disassembly and assembly, if applicable;
- be designed to minimize potential incorrect assembly;
- continue to operate even when collection canister is full;
- be compatible with industry standard suction catheters and connectors;
- be operable by one (1) paramedic, using one hand;
- have a minimum collection capacity of 200 ml;
- have a suction tip, minimum 8 mm internal diameter;
- have a suction tip designed to minimize risk of damage to the teeth and the soft tissues of the mouth and oropharynx;
- be designed for use with the infant, child and adult patients;
- provide a vacuum range that meets current AHA guidelines;
- provide a minimum 20 litres per minute airflow;
- be disposable or allow cleaning and disinfection of all components that are not disposable.

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## **Suction Unit, Portable Electric**

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### **Minimum requirements:**

The portable electric suction unit must:

- be capable of being operated from an integral battery supply that will allow the unit to meet the minimum airflow and suction requirements listed in this standard for at least twenty (20) minutes of continuous operation;
- be capable of operating utilizing the 12-V DC electrical system in an ambulance;
- provide, with all tubing, filter(s) and collection containers connected, a minimum of 16 litres per minute airflow at 200 mmHg and 20 litres per minute airflow at 550 mmHg. Measurement shall be at the patient end of the suction tube;
- provide a vacuum level of >300 mmHg to be reached within 4 seconds, with all tubing, filter(s) and collection containers connected. Measurement shall be made when the patient end of the suction tube is clamped;
- include a vacuum control and shutoff mechanism, or combination thereof, to adjust vacuum levels and to discontinue aspiration instantly;
- include a vacuum indicator with numerical markers at least every 100 mmHg and having a total range of 0 to 550 mmHg;
- be provided with one (1) 2 metre length of suction tubing, that is translucent, non kinking, will not collapse when subjected to a continuous minimum vacuum of 550 mmHg at a temperature of 45 degrees Celsius for a minimum of five (5) minutes;
- include tubing and fittings in the airflow path not less than 6.4 mm in diameter;
- include a disposable collection container system that resists breaking and is transparent. The container system must have a minimum total capacity of 600 ml (single container or multiple containers). Each individual collection container must have a minimum capacity of 300 ml. Collection containers must be constructed of a material that is impact resistant. All containers, including those contained within a protective frame, shall not inhibit the viewing of the container's contents;
- be equipped a hydrophobic submicron filter with a minimum viral and bacterial filtration efficiency of 99.99% at the exhaust end.

### **With regards to batteries and electrical power supply for the suction unit:**

- If the integral battery is rechargeable, it shall be rechargeable from the ambulance's 12V DC electrical system and from 115V AC. The 115-V AC charging system need not be integral to the portable suction unit.
- The battery shall be rechargeable while installed in the aspirator case. Batteries shall not be physically disconnected in order to initiate their recharge.
- External battery chargers must be CSA approved for "Electro-medical Use" and bear the applicable CSA file number.
- The suction unit must include electrical cords and plugs that will interface within the ambulance conversion design.

### **References:**

ANSI / ISO10079.1

AHA Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care, 2010

## **Suction Unit, Tubing**

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### **Minimum requirements:**

Suction unit tubing must:

- be disposable;
- be constructed from clear, non-conductive medical grade material;
- be a minimum 182 cm in length (6 ft);
- have a minimum inside diameter of 7.0 mm;
- be capable of withstanding a vacuum of 560 mmHg without the walls collapsing.

## **Suction Unit, Vehicle**

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### **Minimum requirements:**

The vehicle suction unit must:

- be compatible with industry standard suction catheters, tubing and connectors;
- have a bag type or collection jar system, minimum capacity of 1.1 litres, that allows for easy disposal of aspirate;
- be supplied with a control panel complete with on / off switch that will control power supply, a 'power on' light, a vacuum gauge control switch and circuit breaker;
- be supplied with a vacuum gauge that will register a minimum 0 - 550 mmHg;
- allow a minimum 16 litre per minute airflow at 200 mmHg, and 31 litre per minute airflow at 550 mmHg.

### **References:**

ANSI / ISO10079.1

AHA Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care, 2010

**Symptom Relief Kit****Minimum requirements:**

Ambulance services must utilize one (1) carrying case for the purpose of transporting the required medications and administration supplies described in this standard.

The Symptom Relief Kit must contain the following medications and accessory equipment; along with any auxiliary medications as applicable:

<b>Equipment Description</b>	<b>EHSB Standard No.</b>	<b>Minimum Quantity</b>
<b>Medications</b>		
acetylsalicylic acid (ASA) (81 mg/tablet)	N/A	6 tablets
epinephrine 1:1000 (1 mg/1 ml)	N/A	10 mg
glucagon	N/A	2 mg
glucose, oral (paste, tablets or other formulation) 15 G/dose	N/A	2
nitroglycerin, lingual aerosol (0.4 mg/dose) <b>OR</b> nitroglycerin, tablets (0.3 <b>or</b> 0.4 mg/dose)	N/A	2 canisters <b>or</b> 2 bottles
salbutamol, inhalation aerosol (100 mcg/puff) <b>AND</b> salbutamol, inhalation solution	N/A	2 canisters <b>and</b> 25 mg total
<b>Accessory Equipment</b>		
alcohol preps	N/A	10
glucometer	145	1
metered dose inhaler (MDI), valved holding chamber	230	2
needles	240	2 each size
syringe, medical	405	2 each size

## **Syringe, Medical**

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### **Minimum requirements:**

Medical syringes must:

- be disposable;
- have molded syringe barrels and plunger rods with flexible stoppers;
- be translucent for visibility of material quality and have visible graduated markings indicating fluid levels;
- be made from biocompatible materials which are pharmacologically inert, chemically resistant, and non-toxic;
- have a leak-proof twist-lock fitting;
- be individually packaged;
- be sterile;
- be available in 1 ml, 3 ml, and 10 ml sizes.

### **Reference:**

ISO 7886-1:1993

## **Thoracostomy Device**

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### **Minimum requirements:**

Thoracostomy devices must:

- consist of a 14 gauge catheter-over-needle with a minimum length of 6.35 centimetres (2.5 inches).

**OR**

- be a similar device with the same minimum length and internal diameter.



## **Vest, High Visibility**

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### **Minimum requirements:**

High visibility vests must:

- combine fluorescent and retro-reflective materials for enhanced visibility under the most compromised lighting conditions;
- be fluorescent yellow-green in colour;
- have two yellow stripes that are 5 centimetres wide. The yellow area shall total at least 500 square centimetres on the front and at least 570 square centimetres on the back;
- have on the front, stripes arranged vertically and centred that are approximately 225 millimetres apart, measured from the centre of each stripe. On the back, they shall be arranged in a diagonal “X” pattern;
- be large enough to be comfortably fastened over winter apparel;
- have fabric hook & loop fasteners;
- have side and back tear-away features;
- accommodate belt-mounted equipment.

### **References:**

ANSI/ISEA 207-2006

CSA-Z76-02 Section 5.1.1



*Part "B"*

**Auxiliary Equipment Standards**

## **Automatic Transport Ventilator**

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### **Minimum requirements:**

Automatic transport ventilators must:

- fit into a first response kit and be capable of interfacing with the ambulance conversion design;
- have a standard 15 mm inside diameter and 22 mm outside diameter fitting to attach to resuscitation masks and endotracheal tubes;
- be designed to facilitate the ventilation of a patient at rates and tidal volumes according to the current Guidelines for Resuscitation and Emergency Cardiac Care published by the American Heart Association (AHA) for adults and children;
- be designed to be able to facilitate both one and two person cardio-pulmonary resuscitation (CPR) as per the current Guidelines for Resuscitation and Emergency Cardiac Care published by the AHA for adults and children;
- allow the rescuer to place two hands on the resuscitation mask during the inspiratory phase for both manual and automatic ventilation when a resuscitation mask is used;
- be capable of delivering tidal volumes of 4 – 12 ml/kg (inclusive) while maintaining a constant Inspiration:Expiration (I:E) Ratio of 1:2 or less;
- provide a respiratory rate range of 8 - 26 breaths (inclusive) while maintaining a constant I:E Ratio of 1:2 or less;
- be able to select tidal volumes and ventilation frequencies for a range of patient sizes from child to large adult;
- have the ability to provide “demand breathing”;
- provide a pressure relief valve with an audible alarm that is triggered at a maximum pressure of 60 cm H<sub>2</sub>O and which vents remaining gas to the atmosphere;
- be constructed such that misassembly of the components is minimized;
- not adversely affect the operating capabilities normally associated with oxygen delivery equipment used within the land ambulance system.

### **References:**

ISO 10651-3:1997

AHA Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care, 2010

AARC Mechanical Ventilator Protocols 2003

## **Continuous Positive Airway Pressure Unit**

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### **Minimum requirements:**

Continuous positive airway pressure (CPAP) units must:

- be driven/powered by oxygen with an anti-suffocation valve;
- have independent adjustable settings CPAP pressure from 5 – 10 cm H<sub>2</sub>O;
- have an airway pressure relief mechanism;
- have the ability to provide a minimum FIO<sub>2</sub> of 50% with optional FIO<sub>2</sub> of 100% oxygen;
- use a disposable circuit including mask and head harness for CPAP delivery;
- include oxygen hose/tubing that will allow the device to be attached to an oxygen source at a minimum distance of two (2) metres;
- have the ability to provide nebulized and/or metered dose inhaler medication;
- have a method for attaching a hydrophobic submicron filter to decrease the risk of airborne contagion.

## **Meconium Aspirator Adapter (Endotracheal Tube)**

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### **Minimum requirements:**

Meconium aspirator adapter tubing must:

- be disposable;
- attach to an endotracheal tube;
- have an internal diameter size of 15 mm;
- have a thumb port that allows for intermittent suctioning;
- be individually packaged;
- be sterile.

## **Stretcher, Folding**

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### **Minimum requirements:**

The folding stretcher must:

- be manufactured with materials that can be easily cleaned and disinfected;
- fold in half longitudinally for easy storage;
- have an adjustable back rest that allows patient positioning from supine to fully sitting;
- have a telescoping handle at the head end that will manually telescope in when the head of the stretcher is raised or for storage and out when head is lowered and when in use;
- have a minimum of two (2) fixed wheels with solid rubber, or better tires, one mounted at each of the head end corners of the frame;
- allow for the use of restraining straps (MOHLTC Standard #300);
- be capable of carrying a minimum load of 160 kg (350 lbs);
- be manufactured with materials that can be easily cleaned and disinfected;
- have high visibility colour.

### **Dimensions/Tolerances:**

The physical dimensions of the folding stretcher must accommodate, as a minimum, a 90<sup>th</sup> percentile male.

### **Reference:**

Canadian Community Health Survey