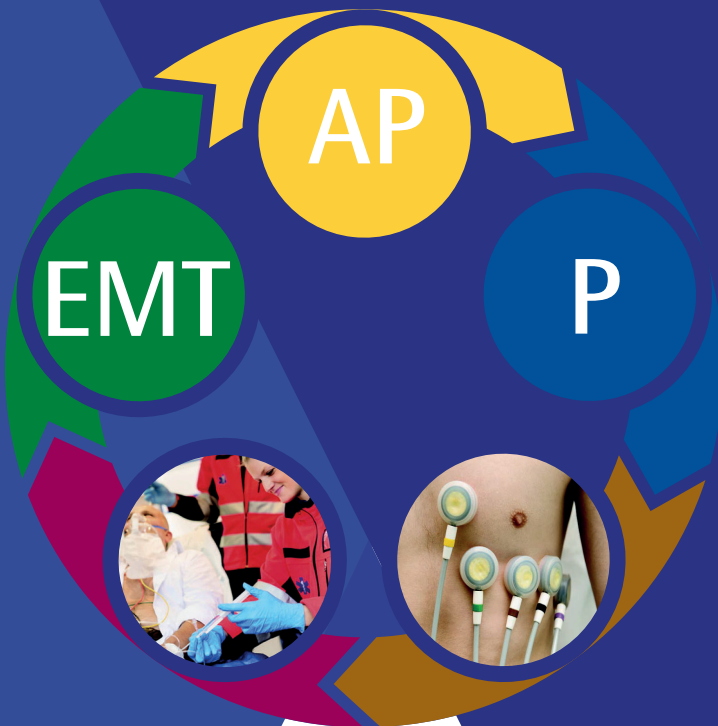


FIELD GUIDE 2017

For Pre-Hospital Emergency Care Practitioners



Information

The Pre-Hospital Emergency Care Council (PHECC) is an independent statutory body with responsibility for standards, education and training in pre-hospital emergency care in Ireland. PHECC's primary role is to protect the public.

Mission Statement

The Pre-Hospital Emergency Care Council protects the public by independently specifying, reviewing, maintaining and monitoring standards of excellence for the delivery of quality pre-hospital emergency care for people in Ireland.

The Council was established as a body corporate by the Minister for Health and Children by Statutory Instrument Number 109 of 2000 (Establishment Order) which was amended by Statutory Instrument Number 575 of 2004 (Amendment Order). These Orders were made under the Health (Corporate Bodies) Act, 1961 as amended and the Health (Miscellaneous Provisions) Act 2007.

This Field Guide is not a substitute for the published Clinical Practice Guidelines (CPGs). It is a quick reference to help Practitioners in the field particularly with medication calculations.

This Medications Field Guide does not authorise skills or medication administration. Practitioners should only practice within their scope of practice and in accordance with their level on the PHECC Register.

The route of administration should be appropriate to the patient's clinical presentation.

Medications Update

Please refer to www.phecc.ie for up-to-date medications information.

Medications herein may be administered provided:

1. The Practitioner is in good standing on the PHECC Register.
2. The Practitioner complies with the CPGs published by PHECC.
3. The Practitioner is acting (paid or voluntary) on behalf of an organisation that is a PHECC licenced CPG provider.
4. The Practitioner is privileged, by the organisation on whose behalf he/she is acting, to administer the medication.
5. The Practitioner has received training on, and is competent in, the administration of the medication.
6. The medications are listed in the Medicinal Products 7th Schedule.

PHECC Field Guide for Practitioners 2019

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Thank you to Jason Winters for the ECG rhythm guide.

Glasgow Coma Scale (GCS) courtesy of Sir Graham Teasdale.

GCS aid © Institute of Neurological Sciences NHS Glasgow and Clyde.

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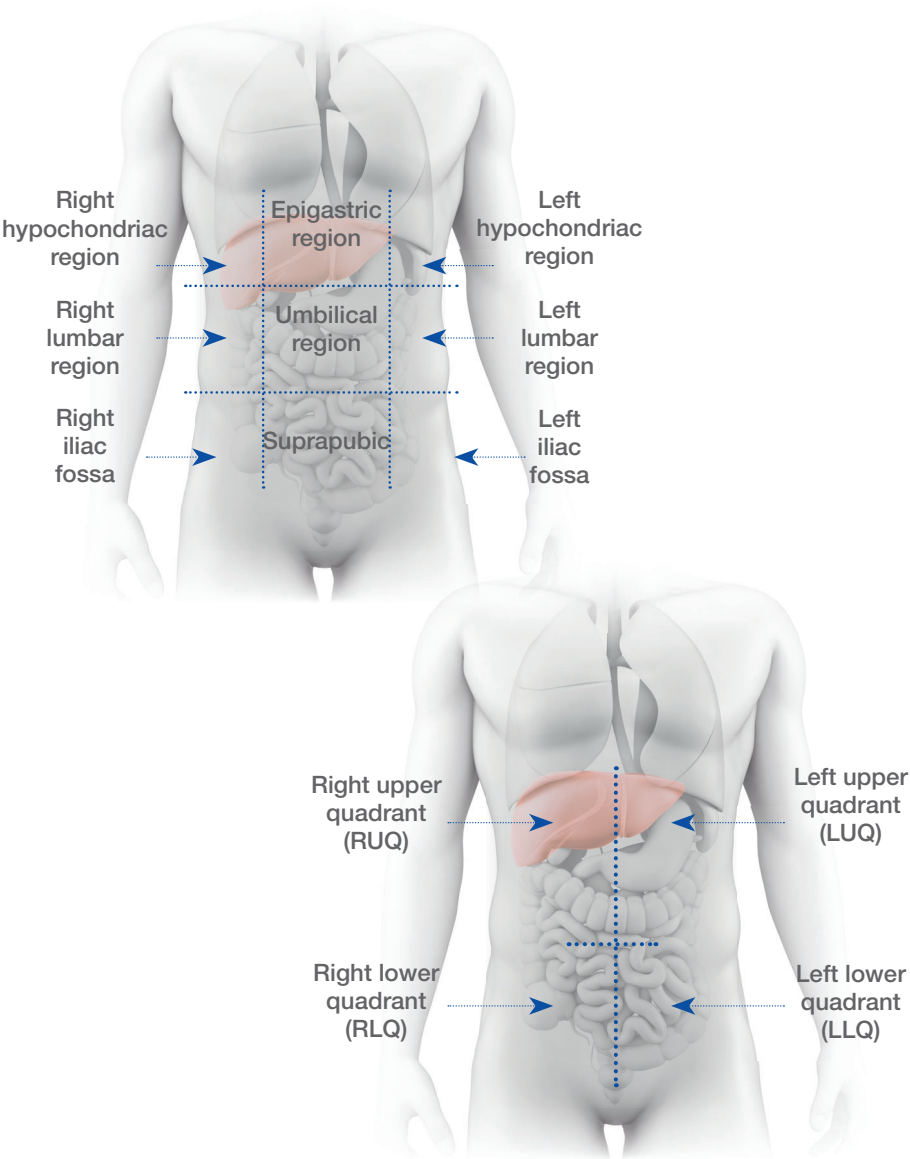
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ASSESSMENT

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THE ABDOMEN AND ABDOMINAL REGIONS



Declined Treatment and/or Transport

Practitioner aid to determine patient
“decision making capacity”

A person lacks the capacity to make a decision if he or she is unable to comply with all four requirements listed below.

Understand the information relevant to the decision	☐ Yes	☐ No
Retain the information long enough to make a voluntary choice	☐ Yes	☐ No
Use or weigh up that information as part of the process of making the decision, or	☐ Yes	☐ No
Communicate decision by any means (including sign language/assistive technology)	☐ Yes	☐ No

If ‘yes’ to all of the above, the patient has demonstrated decision-making capacity and their decision must be respected, however capacity can change with an evolving episode.

If ‘no’ to any of the above, the patient has not demonstrated decision-making capacity at the time and is deemed not to possess current decision-making capacity.

If a patient cannot demonstrate capacity, it is the PHECC practitioner’s responsibility to act to protect the safety and welfare of the patient.

If you are concerned about patient welfare, contact the patient’s GP/relative/Gardaí.

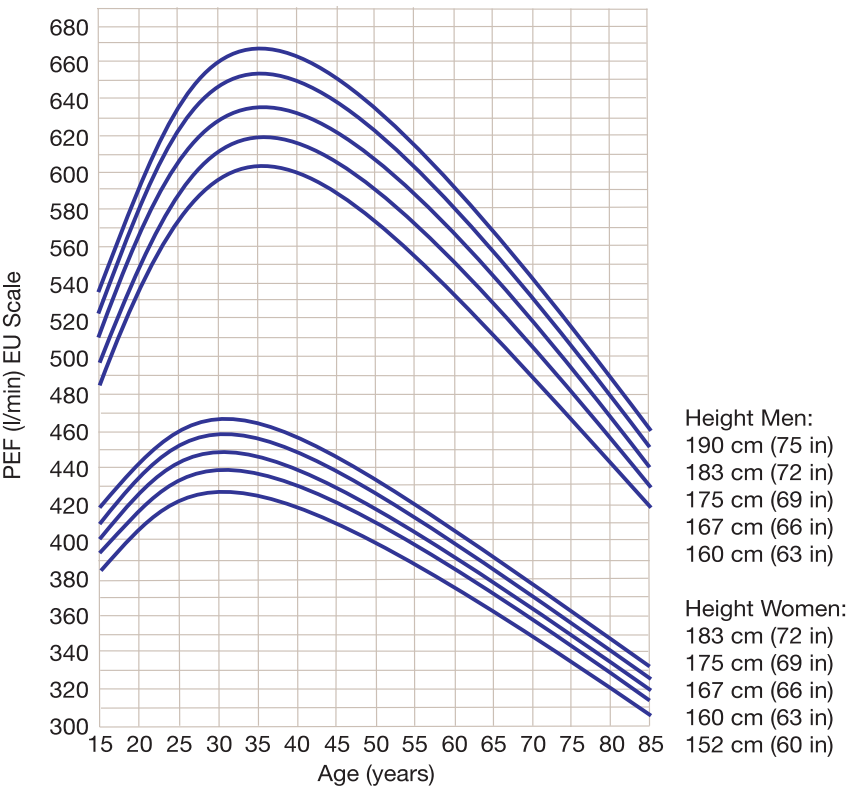
Asthma Decisions

Moderate asthma exacerbation PEFR > 50-75% best or predicted Increased symptoms No features of acute severe asthma	Acute severe asthma Any one of: PEFR 33-50% best or predicted Respiratory rate ≥ 25 / min Heart rate ≥ 110 / min Inability to complete sentences in one breath	Life-threatening asthma PEFR < 33% best or predicted Any one of the following in a patient with severe asthma: SpO₂ < 92% Silent chest Cyanosis Feeble respiratory effort Bradycardia Arrhythmia Hypotension Exhaustion Confusion Unresponsive
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Peak Expiratory Flow Rate – Adult

Normal Values

For use with EU/EN13826 scale PEF meters only



Adapted by Clement Clarke for use with EN13826 / EU scale peak flow meters from Nunn AJ Gregg I, Br Med J 1989;298;1068-70.

$$\frac{\text{Actual PEFR}}{\text{Predicted PEFR}} \times 100 = \% \text{ best PEFR}$$

Female Peak Flow Rate (L/min)				
Height	152 cm (5 ft)		160 cm (5 ft 3 in)	
Age	100%	75%	100%	75%
15	385	289	394	295
20	409	307	419	314
25	422	316	433	325
30	427	320	437	328
35	425	319	436	327
40	420	315	431	323
45	412	309	422	316
50	401	301	411	308
55	389	292	399	299
60	376	282	385	289
65	362	272	371	278
70	348	261	356	267
75	334	250	342	256
80	320	240	327	245
85	306	229	313	235

Female Peak Flow Rate (L/min)				
Height	167 cm (5 ft 6 in)		175 cm (5 ft 9 in)	
Age	100%	75%	100%	75%
15	402	302	411	308
20	428	321	437	328
25	441	331	451	338
30	446	335	456	342
35	445	334	454	341
40	439	329	449	337
45	431	323	440	330
50	419	314	428	321
55	407	305	415	311
60	393	295	401	301
65	378	283	386	289
70	363	272	371	278
75	348	261	355	266
80	334	250	340	255
85	319	239	325	244

Female Peak Flow Rate (L/min)		
Height		183 cm (6 ft)
Age	100%	75%
15	418	313
20	445	334
25	459	344
30	465	349
35	463	347
40	457	343
45	448	336
50	436	327
55	323	317
60	408	306
65	393	295
70	378	284
75	362	271
80	346	260
85	331	248

Male Peak Flow Rate (L/min)				
Height	160 cm (5 ft 3 in)		167 cm (5 ft 6 in)	
Age	100%	75%	100%	75%
15	485	364	498	374
20	540	405	555	416
25	575	431	591	443
30	594	446	611	458
35	601	451	618	463
40	599	449	615	461
45	590	443	606	454
50	575	431	591	443
55	557	418	572	429
60	536	402	550	412
65	513	385	527	395
70	490	367	503	377
75	466	349	478	359
80	441	331	453	340
85	416	313	429	322

Male Peak Flow Rate (L/min)				
Height	175 cm (5 ft 9 in)		183 cm (6 ft)	
Age	100%	75%	100%	75%
15	511	383	524	393
20	571	428	586	439
25	608	456	624	468
30	628	471	645	484
35	636	477	653	490
40	633	475	650	488
45	623	467	640	480
50	608	456	624	468
55	588	441	603	452
60	566	425	581	436
65	542	407	556	417
70	517	388	530	398
75	491	368	503	377
80	465	349	477	358
85	440	330	451	338

Male Peak Flow Rate (L/min)		
Height		190 cm (6 ft 3 in)
Age	100%	75%
15	535	401
20	601	451
25	637	478
30	659	494
35	666	499
40	664	498
45	653	490
50	637	478
55	616	462
60	593	445
65	567	425
70	541	406
75	514	385
80	487	365
85	460	345

Source: HSE National Asthma Care Programme.

AVPU

A	Alert	awake and interacting with the environment
V	response to Voice	not alert (as defined above) but responding to verbal stimuli
P	response to Pain	does not respond to voice but responds only to painful stimuli
U	Unresponsive	does not respond to any stimuli

Glasgow Coma Scale

GCS for ≥ 5 years		
Criterion	Eye Opening	
Open before stimulus	Spontaneous	4
After spoken/shouted request	To sound	3
After finger tip stimulus	To pressure	2
No opening at any time or interfering factor	None	1
Closed by local factor	Non testable	NT
Criterion	Verbal Response	
Correctly gives name, place, date	Orientated	5
Not orientated but communicating coherently	Confused	4
Intelligible single words	Words	3
Only moans/groans	Sounds	2
No audible response, no interfering factor	None	1
Factor interfering with communication	Non testable	NT
Criterion	Motor Response	
Obey 2-part request	Obeys commands	6
Brings hand above clavicle to stimulus on head/neck	Localising	5
Bends arm at elbow rapidly but features not predominantly abnormal	Normal flexion	4
Bends arm at elbow, features clearly predominantly abnormal	Abnormal flexion	3
Extends arm at elbow	Extension	2
No movement in arms/legs, no interfering factor	None	1
Paralysed or other limiting factor	Non testable	NT



CHECK

For factors Interfering with communication, ability to respond and other injuries.



OBSERVE

Eye opening, content of speech and movements of right and left sides.



STIMULATE

Sound: Spoken or shouted request.
Physical: Pressure on finger tip, trapezius or supraorbital notch.



RATE

Assign according to highest response observed.

FEATURES OF FLEXION RESPONSES

Abnormal Flexion

Slow Sterotyped
Arm across chest
Forearm rotates
Thumb clenched
Leg extends



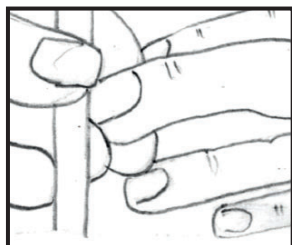
Normal Flexion

Rapid
Variable
Arm away from body

*Modified with permission
from Van Der Naalt 2004
Ned Tijdschr Geneeskd*

SITES FOR PHYSICAL STIMULATION

Finger tip pressure



Trapezius Pinch

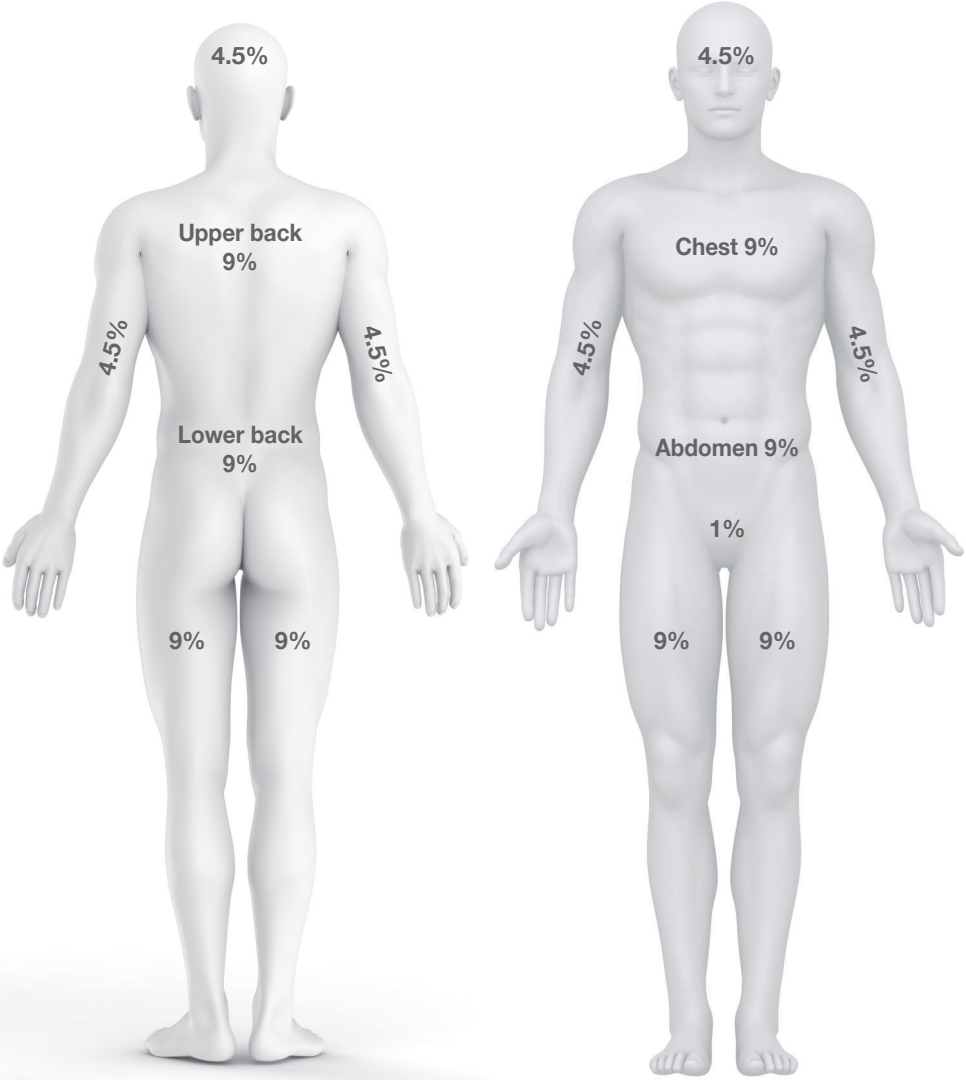


Supraorbital notch



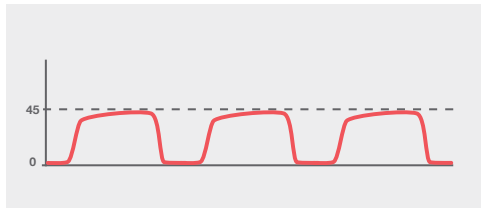
Burns - Adult

Wallace's Rule of Nines



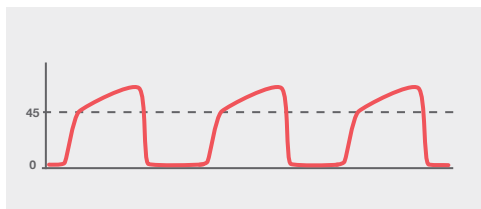
Adult

Capnography Waveforms



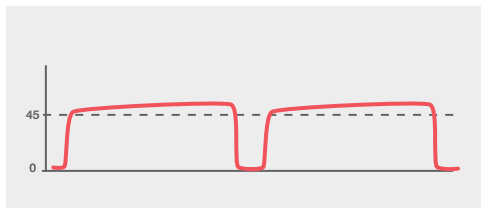
Normal ETCO₂ Waveform

Normal range 35 - 45 mmHg



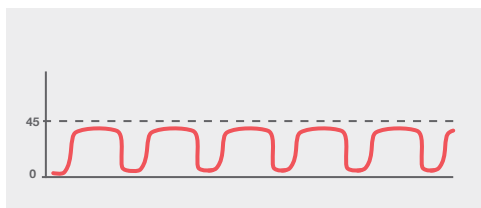
Curved, 'shark-fin' appearance

Asthma
COPD



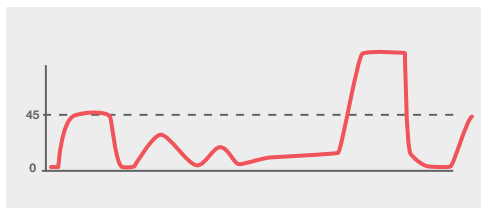
Slow rate with increased ETCO₂

Hypoventilation
Respiratory depression
Partial airway obstruction



Rapid rate with decreased ETCO₂

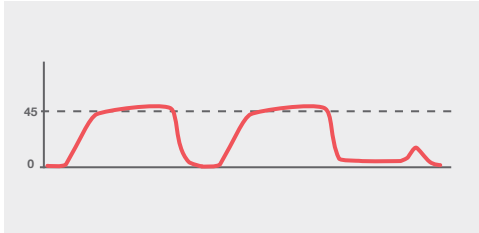
Hyperventilation
Excessive BVM use
Pulmonary embolism



Decreased ETCO₂ with variable waveform

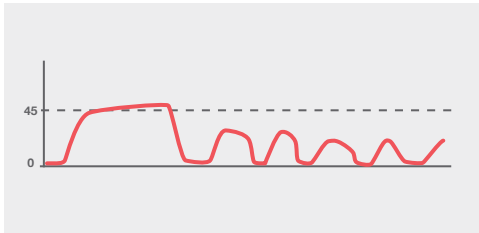
Apnoea
Inadequate breathing
Sedation

Capnography Waveforms



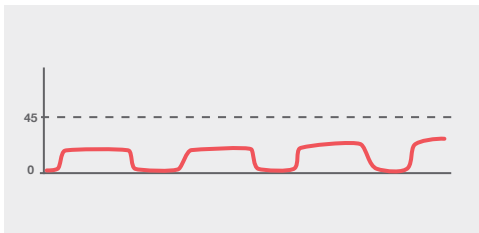
ETCO₂ in an intubated patient

- Sudden loss of waveform, reading near zero
- Tube disconnected, dislodged or obstructed



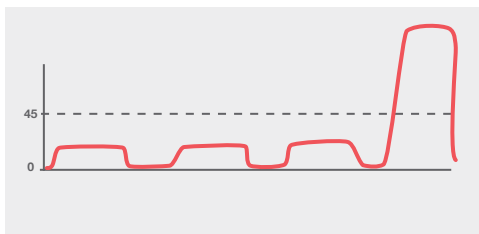
Decreasing ETCO₂ with loss of plateau

- ET tube cuff issue
- ET tube in hypopharynx
- Partial obstruction



During CPR

- Attempt to maintain minimum of 10 mmHg



Sudden increase in ETCO₂

- Return of spontaneous circulation

Hypothermia

Temp	Direction for cardiac arrest
Mild 34 - 35.9°C	Follow CPGs but no active re-warming
Moderate 30 - 33.9°C	Follow CPGs but double medication interval until temperature > 34°C and no active re-warming beyond 32°C
Severe < 30°C	Follow CPGs but limit defibrillation to 3 shocks, withhold medications until temperature > 30°C and no active re-warming beyond 32°C
Temp	Direction for bradycardia
Mild 34 - 35.9°C	Follow CPGs
Moderate 30 - 33.9°C	Follow CPGs but do not use Atropine until temperature > 34°C
Severe < 30°C	Follow CPGs but do not use Atropine until temperature > 34°C

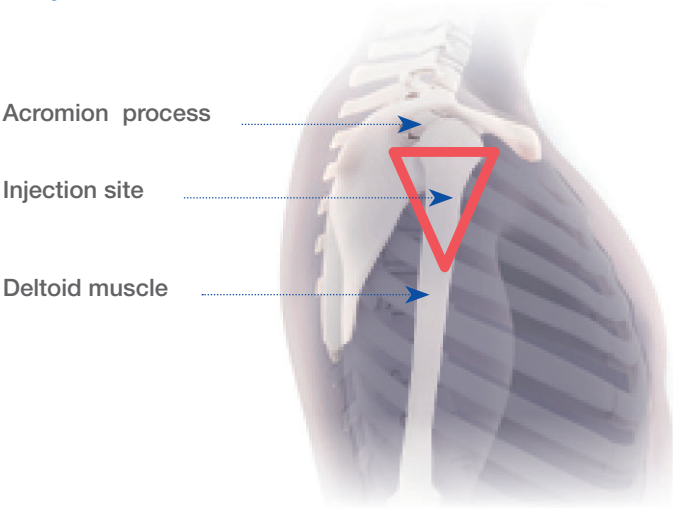
Hypodermic needles for IM injection

Patient	mm	Gauge	Site
Birth to < 1 year	16	25G	Vastus lateralis
1 to 3 years	25	23G	Vastus lateralis or deltoid (depends on muscle mass)
Women < 90 Kg	25	23G	Deltoid
Women > 90 Kg	40	21G	Deltoid
Men 60 - 118 Kg	25	23-25G	Deltoid
Men > 118 Kg	40	23-25G	Deltoid

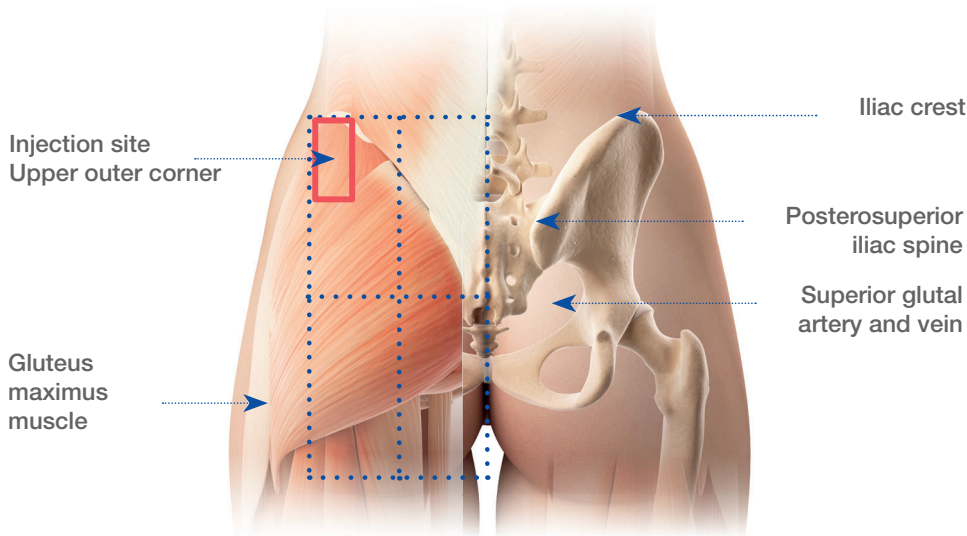
Hydrocortisone IM: avoid deltoid site

Ceftriaxone IM: up to 1g (3.5 mL) divide into more than one injection site

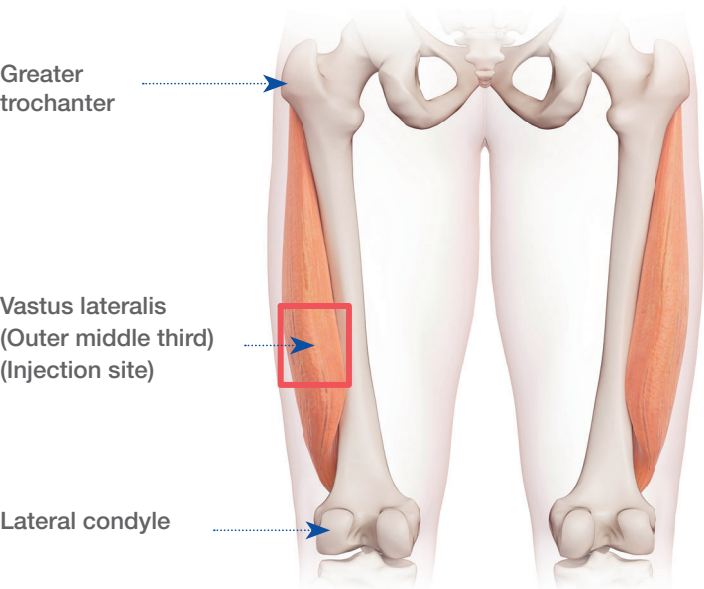
IM Injection site



IM Injection site (Dorsogluteal)



IM Injection site (Vastus Lateralis)



12 LEAD ECG

I Lateral	aVR	V1 Septal	V4 Anterior
II Inferior	aVL Lateral	V2 Septal	V5 Lateral
III Inferior	aVF Inferior	V3 Anterior	V6 Lateral

12-lead placement for left side of chest and modified right sided ECG

Angle of Louis

V1 fourth intercostal space to the right of the sternum

V2 fourth intercostal space to the left of the sternum

V3 directly between V2 & V4

V3R **Right sided ECG**
directly between V1 & V4R

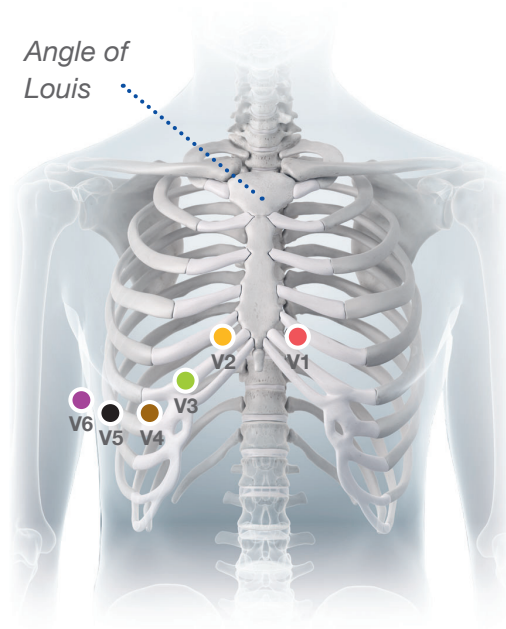
V4 fifth intercostal space at left midclavicular line

V5 level with lead V4 at left anterior axillary line

V6 level with lead V5 at left midaxillary line (directly under the midpoint of the armpit)

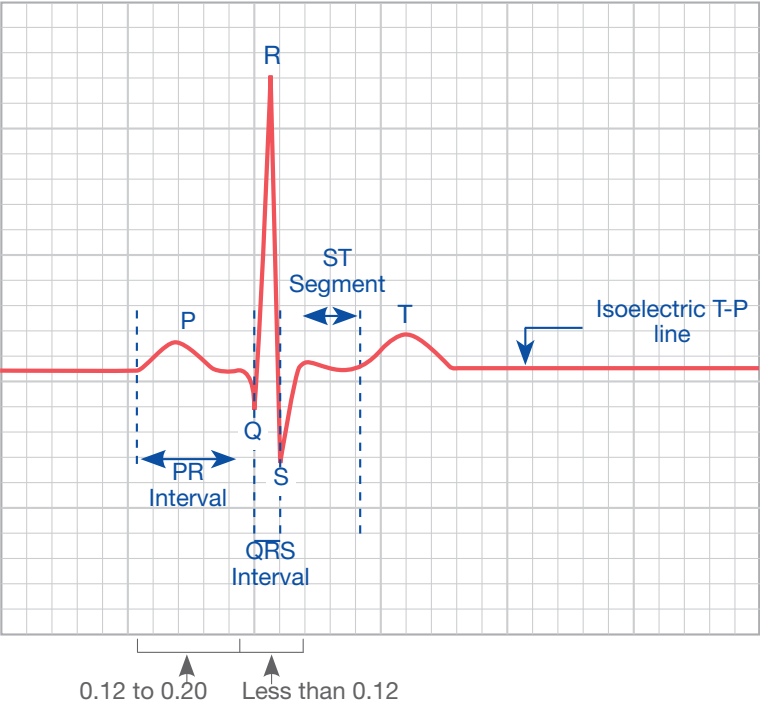
V4R **Right sided ECG**
fifth intercostal space at right midclavicular line.

12-lead placement for right side of chest



V1	fourth intercostal space to the left of the sternum
V2	fourth intercostal space to the right of the sternum
V3	directly between V2 & V4
V4	fifth intercostal space at right midclavicular line
V5	level with lead V4 at right anterior axillary line
V6	level with lead V5 at right midaxillary line (directly under the midpoint of the armpit)

ECG Interpretations



Rate = No. of R waves in 6 seconds x 10						
No. of large squares between R waves	1	2	3	4	5	6
Rate	300	150	100	75	60	50

Normal PR interval = 3 to 5 small squares (0.12 to 0.2 seconds)
Normal QRS interval < 3 small squares (0.12 seconds)

Agreed definition with ACS Programme

ST elevation ≥ 1 mm in ≥ 2 adjacent limb leads and/or ≥ 2 mm in ≥ 2 adjacent chest leads or (presumably) new LBBB with clinical symptoms of AMI.

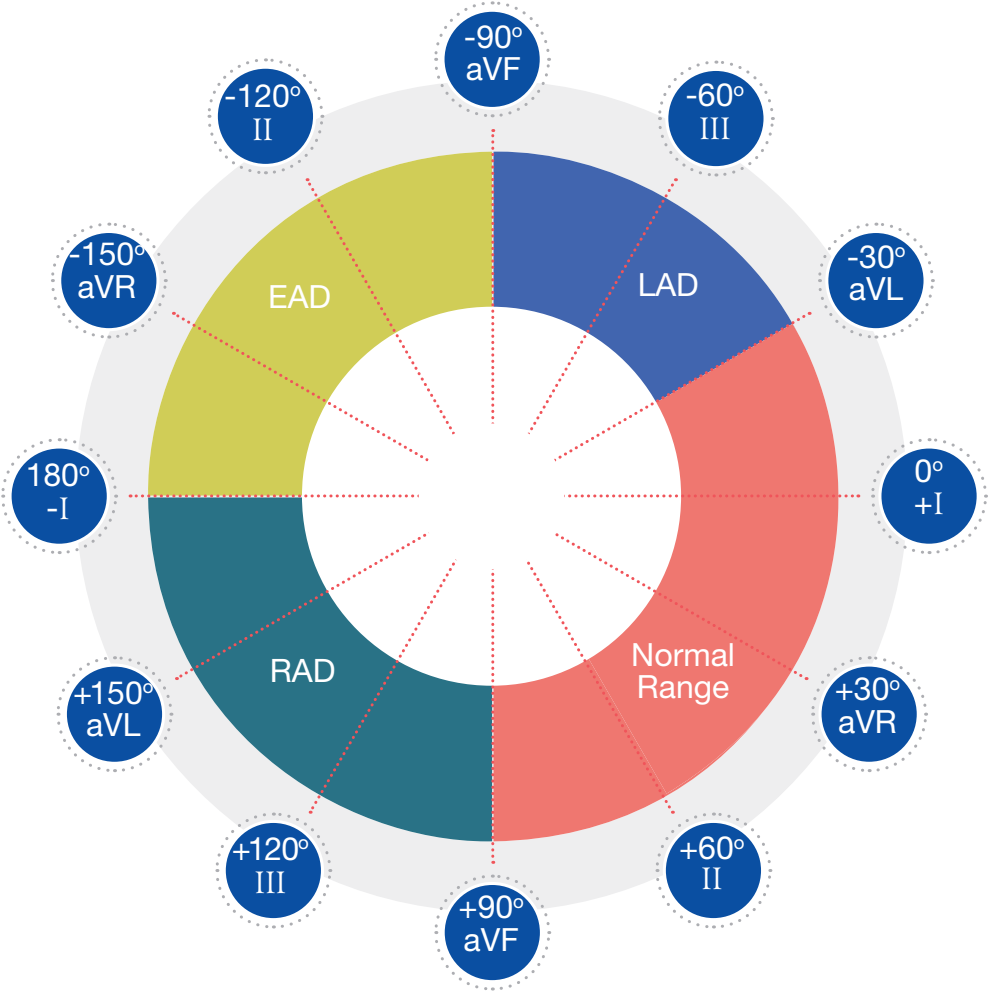
Coronary Arteries and ECG

I Lateral Cx/LAD	aVR	V1 Septal LAD	V4 Anterior LAD
II Inferior RCA	aVL Lateral Cx/LAD	V2 Septal LAD	V5 Lateral Cx/LAD
III Inferior RCA	aVF Inferior RCA	V3 Anterior LAD	V6 Lateral Cx/LAD

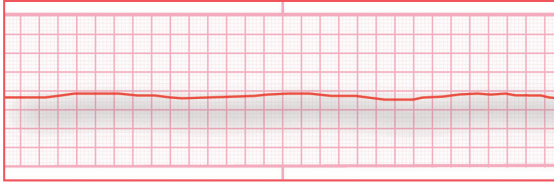
RCA: Right coronary artery LAD: Left anterior descending Cx: Circumflex

*There may be an overlap in blood supply by the RCA and CX artery depending on which artery is dominant.

Cardiac Axis

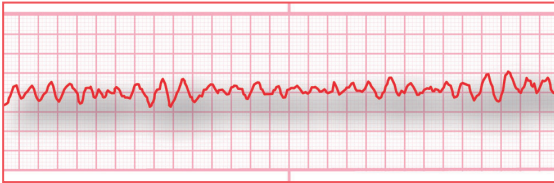


Common ECG Rhythms



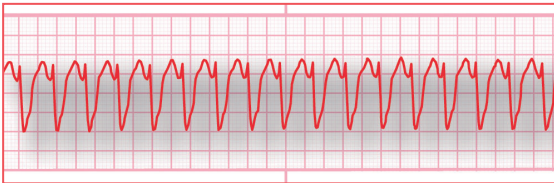
Asystole

- Cardiac arrest rhythm
- No output
- No obvious complexes



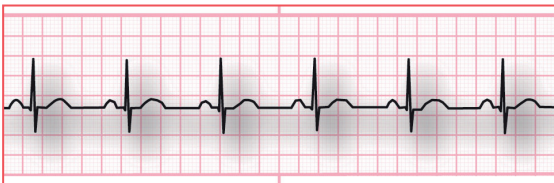
Ventricular Fibrillation (VF)

- Cardiac arrest rhythm
- No output
- Irregular & disorganised



Ventricular Tachycardia (VT)

- QRS wide and bizarre but regular
- Fast (100-250 bpm)
- P wave absent



Normal Sinus Rhythm (NSR)

- QRS normal
- P wave normal
- Regular
- Rate between 60-100 bpm

Common ECG Rhythms



NSR with isolated PVC

- NSR present EXCEPT:
- Wide and bizarre complex/es
- Unifocal: identical shape
- Multifocal: PVCs appear different



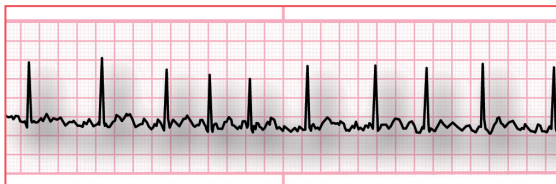
Sinus Bradycardia

- Regular
- Normal P wave & QRS
- Slow rate (< 60 bpm)



Sinus Tachycardia

- Regular
- Normal P wave & QRS
- Fast rate (> 100 bpm)



Atrial Fibrillation (AF)

- Irregularly irregular
- No P waves
- Variable ventricular rate

Poison Care

National Poison Information Centre - 01 8092566

(Statutory APs to consider contacting “online medical advice” at Medico-Cork).

Poison	Symptoms	Medication Tx
Tricyclic (antidepressants)	Wide QRS or seizure (anticholinergic)	Sodium Bicarbonate
Organophosphate	Bradycardia and salivation (cholinergic)	Atropine
Opiate	Inadequate respirations	Naloxone

Caution: Paraquat – Oxygen therapy only if SpO2 < 92%.

Caution with serotonin syndrome secondary to MDMA toxicity: prehospital treatment is supportive care and aggressive active cooling.

Common Tricyclic (antidepressant) Medications

Medication	Trade name	Medication	Trade name
Clomipramine	Anafranil	Trazodone	Molipaxin
Dosulepin	Prothiaden	Dothiepin	Dothep
Lofepramine	Gamanil	Trimipramine	Surmontil

Poison Care (*cont.*)

Toxidromes

Toxidromes are clinical syndromes for the successful recognition of poisoning patterns.

Opiates Toxidrome

Morphine, Heroin, Codeine (Solpadol), Distalgesic, Fentanyl

Neurological	Coma, seizures
Pupils	Pinpoint (miosis)
Respirations	Depressed
Pulse	Bradycardia
BP	Hypotension
Skin	No change
Temperature	Hypothermia
GI / GU	Constipation

Sympathomimetic Toxidrome (fight or flight)

Cocaine, Amphetamines, MDMA, Ephedrine, PMA

Neurological	Excitation, hallucinations, seizures
Pupils	Dilated
Respiratory	Increased rate
Pulse	Tachycardia, arrhythmias
BP	Hypertension
Skin	Warm and sweaty
Temperature	Hyperthermia
GI / GU	Increased bowel sounds

Poison Care (cont.)

Cholinergic Toxidrome

Organophosphates (insecticides), Mushrooms

Neurological	Confusion, drowsiness, coma, muscle weakness, twitching
Pupils	Pinpointed (miosis)
Respiratory	No change
Pulse	Bradycardia / Tachycardia
Skin	Sweating
Respirations	Depression, bronchospasm
GI / GU	Salivation, Lacrimation, Urination, Defaecation, Gastric upset, Emesis (SLUDGE)

Anticholinergic Toxidrome

(Hot as a hare, dry as a bone, red as a beetroot and mad as a hatter). Antihistamines, Antidepressants, Phenothiazines, Mushroom, Plants

Neurological	Agitated, fits, hallucinations or drowsiness, hypertonia
Pupils	Dilated
Respiratory	No change
Pulse	Tachycardia, arrhythmias
BP	Hypertension
Skin	Flushed, hot and dry
Temperature	Hyperthermic
GI / GU	Urinary retention, dry mouth

Poison Care (*cont.*)

Sedative-Hypnotic Toxidrome

Anti-anxiety agents, Benzodiazapines, barbituates. Z-drugs (e.g. Zopiclone), anti-histamines

Neurological	Altered level of consciousness
Pupils	Normal
Respiratory	Slow and shallow
Pulse	Lowered
BP	Hypotension
Skin	Dry
Temperature	Hypothermic
GI / GU	Reduced bowel sounds

Sepsis

SIRS (Systemic Inflammatory Response Syndrome):

The clinical syndrome that results from a deregulated inflammatory response or to a non-infections insult.

Sepsis: SIRS that is secondary to infection that has been diagnosed clinically.

Severe Sepsis: Refers to sepsis complicated by organ dysfunction.

Septic Shock: Severe sepsis with circulatory shock with signs of organ dysfunction or hypoperfusion despite adequate fluid resuscitation and persistent systolic BP < 90/60 mmHg, MAP < 65 mmHg), decrease by 40 mmHg from baseline and/or serum lactate level ≥ 4.0 mmol/L.

Sepsis Identification Tool

Signs of SIRS

- Temperature < 36 or $> 38.3^{\circ}\text{C}$
- Heart rate > 90
- Respiratory rate > 20
- Acutely confused
- Glucose > 7.7 (not diabetic)

Has the patient two or more signs (SIRS)

Yes

No

Continue
Care

Could this be a severe infection?

For example

- Pneumonia
- Meningitis/meningococcal disease
- UTI
- Abdominal pain or distension
- Indwelling medical device
- Cellulitis/septic arthritis/infected wound
- Chemotherapy < 6 weeks
- Recent organ transplant
- On immune-suppressant medication

Yes

No

Are there signs of shock/ poor perfusion

- Mottled/cold peripheries
- Central capillary refill > 2 sec
- SBP < 90 mmHg
- Purpuric rash
- Absent radial pulse
- Heart rate > 130
- RR > 30
- Altered mental status
- Oligo or anuria

Yes

No

If SIRS +
Infection

Advise triage
nurse

Severe sepsis/septic Shock/meningitis suspected/ neutropenia

- Emergency transport to ED
- Pre-alert ED
- Ceftriaxone
- NaCl
- O₂ titrate to sats $> 94\%$

Immunosuppressant Medications

Immunosuppressant Medications	
Generic name	Brand name
Adalimumab	Amgevita, Humira, Idacio, Imraldi, Kromea
Azathioprine	Imuger, Imuran
Betamethasone	Betnesol,
Certolizumab	Cimzia
Ciclosporin	Deximune, Neoral, Sandimmun
Dexamethasone	Dexamethasone
Etanercept	Benepali, Enbrel, Erelzi, Lifmior
Everolimus	Afinitor, Certican, Everolimus
Golimumab	Simponi, Simponi Aria
Hydrocortisone	Multiple brands
Hydroxychloroquine	Plaquenil
Infliximab	Inflectra, Ixifli, Renlexis, Remicade
Leflunomide	Arava, Leflunomide, Repso
Methotrexate	Methofill, Metoject, Nordimet
Methylprednisolone	Depo-medrone, Solu-medrone
Mycophenolic Acid	Myfortic
Prednisolone	Deltacortril
Rituximab	MabThera, Rizathon, Riximyo
Siltuximab	Sylvant
Sirolimus	Rapamune, Torisel
Tacrolimus	Advagraf, Envarsus, Modigraf
Teriflunomide	Aubagio
Tocilizumab	RoActemra
Trastuzumab	Herceptin, Herzuma, Kadcyla, Kanjinti, Ogivri, Ontruzant, Trazimera
Triamcinolone	Adcortyl

Caution:

Some of the medications listed have multiple trade names

Many of the listed medications are high-tech medications that will not appear on a GMS prescription if presented during patient care.

Spinal Motion Restriction

1. Assess for Risk Factors

1(a) High risk factors:- any of the following;

- dangerous mechanism of injury
- fall from a height of greater than 1 metre or 5 steps
- axial load to the head or base of the spine e.g. diving, high-speed motor vehicle collision, rollover motor accident, ejection from a motor vehicle, accident involving motorised recreational vehicle, bicycle collision, horse riding accident, pedestrian v vehicle.
- impaired awareness (alcohol/ drug intoxication, confused/uncooperative or ALoC)
- age 65 years or older
- age 2 years or younger incapable of verbal communication

1(b) Low risk factors: any two or more of -

- involved in a minor rear-end motor vehicle collision
- comfortable in a sitting position
- ambulatory at any time since the injury
- no midline cervical spine tenderness
- no spinal column/ midline pain
- And are able to actively rotate their neck 45 degrees to the left and right

2. Assess for Spinal rule-in considerations

Spinal injury rule in considerations:

- any significant distracting injuries
- impaired awareness (alcohol/drug intoxication, confused/uncooperative or ALoC)
- immediate onset of spinal/midline back pain
- hand or foot weakness (motor issue)
- altered or absent sensation in the hands or feet (sensory issue)
- priapism
- history of past spinal problems, including previous spinal surgery or conditions that predispose to instability of the spine.
- Unable to actively rotate their neck 45 degrees to the left and right

Secure to appropriate transportation device

Stroke FAST Assessment

F	F acial weakness	• Can the patient smile? • Has the mouth or an eye drooped? • Which side?
A	A rm weakness	• Can the patient raise both arms and maintain for 5 seconds?
S	S peech problems	• Can the patient speak clearly and understand what you say?
T	T ime when last normal	• Establish last time without symptoms

Don't forget to check glucose

Refer to FAST + in ASHICE message.

Trauma Assessment

Cardiopulmonary function	Measured value	Score
Respiratory Rate (per min)	10 - 29	4
	> 29	3
	6 - 9	2
	1 - 5	1
	None	0
Systolic Blood Pressure (mm Hg)	≥ 90	4
	76 - 89	3
	50 - 75	2
	1 - 49	1
	No BP	0
Glasgow Coma Scale	13 - 15	4
	9 - 12	3
	6 - 8	2
	4 - 5	1
	3	0

Triage revised trauma score

- <11 = Life threatening
- 11 = Serious, not life threatening
- 12 = Non-serious or life threatening

Markers for multi-system trauma

GCS	< 13	Heart Rate	> 120
Systolic BP	< 90	Revised Trauma Score	< 12
Respiratory Rate	< 10 or > 29	Mechanism of Injury	

Notes page:

PAEDIATRIC

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APGAR Scoring System

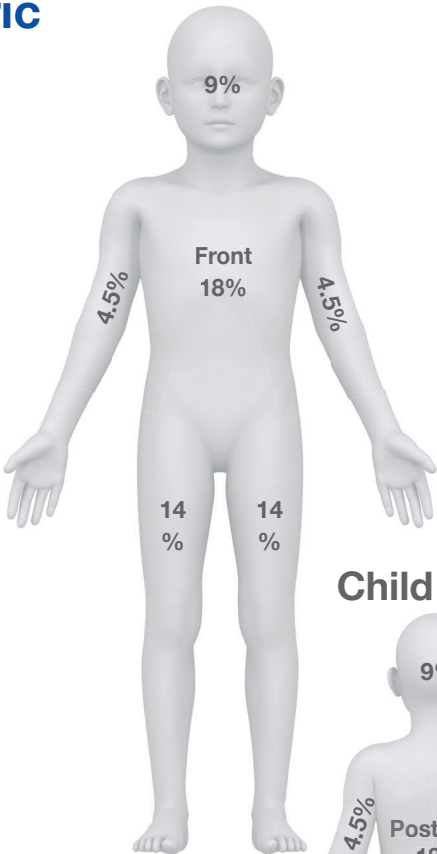
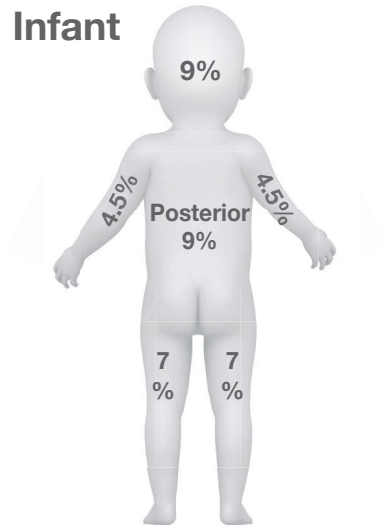
Indicator		0 Points	1 Points	2 Points
A	Activity (muscle tone)	Absent	Flexed arms and legs	Active
P	Pulse	Absent	below 100 bpm	Over 100 bpm
G	Grimace (reflex irritability)	Floppy	Minimal response to stimulation	Prompt response to stimulation
A	Appearance	Blue; pale	Pink body, Blue extremities	Pink
R	Respiration	Absent	Slow and irregular	Vigorous cry

Burns – Paediatric

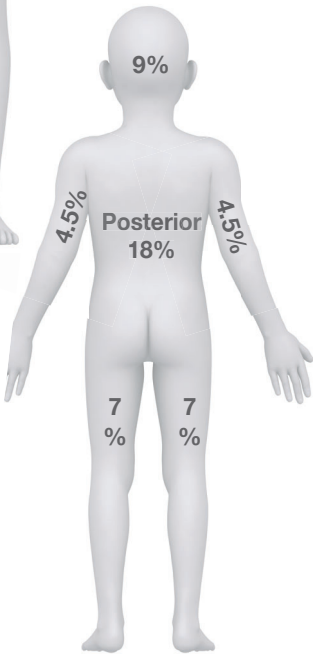
Wallace's Rule of Nines



Infant



Child



Paediatric Advanced Airway Sizes

Age	Cuffed ETT size (cm at lips)	LMA size	I-gel size	LTI size
2 years	4.0 (13.0)	2	1.5	2
3 years	4.0 (13.5)	2	2	2
4 years	4.5 (14.0)	2	2	2
5 years	4.5 (14.5)	2	2	2
6 years	5.0 (15.0)	2.5	2	2
7 years	5.0 (15.5)	2.5	2	2.5
8 years	5.5 (16.0)	2.5	2	2.5
9 years	5.5 (16.5)	2.5	2.5	2.5
10 years	6.0 (17.0)	2.5	2.5	3
11 years	6.0 (17.5)	3	3	3
12 years	6.5 (18.0)	3	3	3
13 years	6.5 (18.5)	3	3	3
14 years	7.0 (19.0)	3	3	4
15 years	7.0 (19.5)	4	3	4

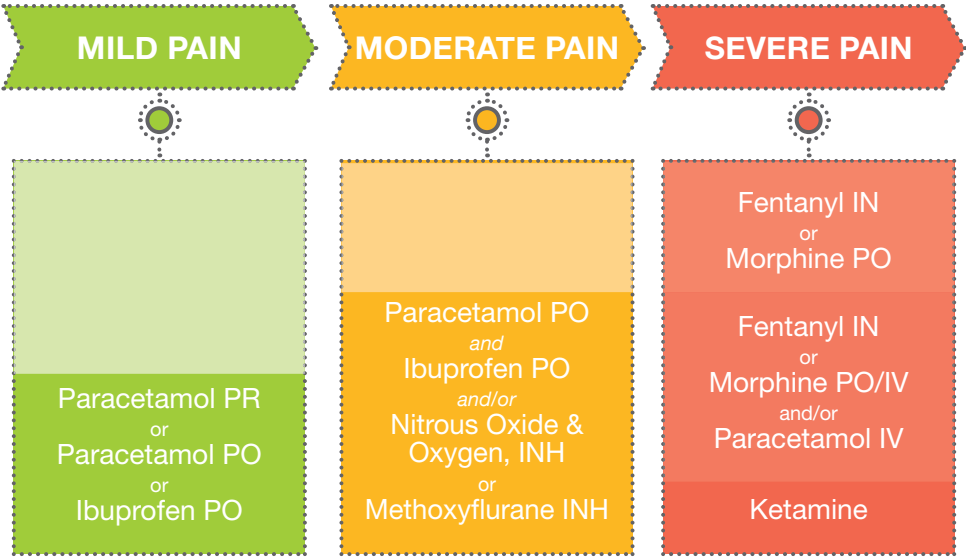
1. Cuffed ET size = (age/4) + 3.5 mm

At the lips = (age/2) + 12 cm

Paediatric Analgesia Options

Non-pharmacological Psychological support Positioning Heat or cold therapy Splinting	Non-opioids Nitrous Oxide and Oxygen Paracetamol Ibuprofen Methoxyflurane Ketamine	Opioids Morphine PO Morphine IV Fentanyl IN
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PHECC Paediatric Pain Ladder



Consider other non-pharmacological interventions

- < 5 years use FLACC scale
- 5 - 7 years use Wong-Baker scale
- ≥ 8 years use analogue pain scale

If pain not resolved

FLACC Scale (for less than 5 years)

	0	1	2
Face	No particular expression or smile.	Occasional grimace or frown, withdrawn, disinterested.	Frequent to constant frown, clenched jaw, quivering chin.
Legs	Normal position or relaxed.	Uneasy, restless, tense.	Kicking or legs drawn up.
Activity	Lying quietly, normal position, moves easily.	Squirming, tense, shifting back and forth, hesitant to move, guarding.	Arched, rigid or jerking, fixed position, rubbing of body parts.
Cry	No cry moan (awake or asleep).	Moans or whimpers, occasional cries, sighs or complaint.	Cries steadily, screams, sobs, moans, groans, frequent complaints.
Consolability	Calm, content, relaxed, needs no consoling.	Reassured by hugging, talking to, or distracting.	Difficult to console or comfort.

0 = No Pain	1 - 3 = Mild	4 - 6 = Moderate	7 - 10 = Severe
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Wong-Baker Faces

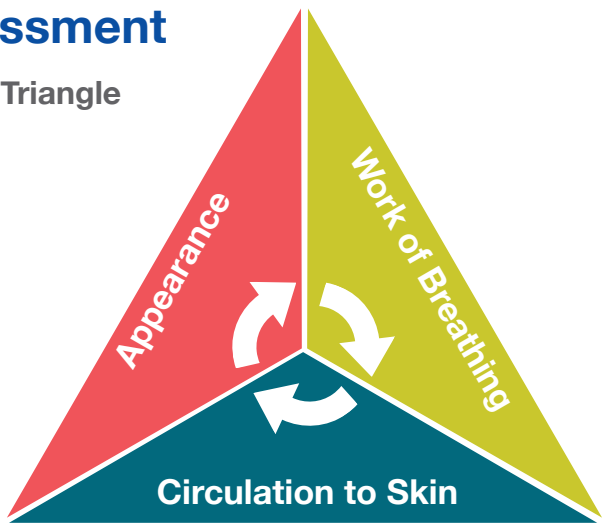
Wong-Baker faces for 5 to 7 years.



Reference: From Wong D. L., Hockenberry-Eaton M., Wilson D., Wilkelstein M. L., Schwartz P.: Wong's Essentials of Paediatric Nursing, ed 6, St. Louis, 2001, p1301.

Paediatric Assessment

Paediatric Assessment Triangle (PAT)



Characteristics of appearance	Features
Tone	Are they moving or vigorously resisting examination? Do they have good muscle tone? Or are they limp, listless or flaccid?
Interactiveness	How alert are they? How readily does a person, object or sound distract him or draw his attention?
Consolability	Can they be consoled or comforted by the caregiver? Or is there crying and unrelieved by gentle reassurance?
Look/Gaze	Do they fix their gaze on a face? Or is there a glassy-eyed stare?
Speech/Cry	Is their speech or cry strong and spontaneous? Or is it weak, muffled or hoarse?

Work of breathing: Rate, nasal flaring, grunting & recession.
Circulation to skin: Capillary refill, palor, mottling & temperature.

Paediatric Values

Normal values

Age	Pulse	Respirations
0 - 3 months	90 - 180	30 - 60
4 - 6 months	80 - 160	30 - 60
7 - 12 months	80 - 140	25 - 45
1 - 3 years	75 - 130	20 - 30
4 - 6 years	70 - 110	16 - 24
7 years	60 - 90	14 - 20

Remember importance of cuff size for blood pressure: cuff width (2/3 of shoulder to elbow distance) and cuff length (2/3 of limb circumference).

Signs of inadequate perfusion

- Cool extremities
- Mottling
- Delayed capillary refill
- Diminished/absent peripheral pulses
- Tachycardia
- Irritability/confusion/ALoC

Acute severe asthma

Any one of the following:

Inability to complete sentences in one breath or too breathless to talk or feed.

Respiratory rate: > 30/min for > 5 years old
> 50/min for 2 to 5 years old

Heart rate: > 120/min for > 5 years old
> 130/min for 2 to 5 years old

Paediatric Glasgow Coma Scale

Normal values

GCS for < 5 years	
Eye Opening	
Spontaneously	4
To verbal stimuli	3
To pain	2
No response	1
Verbal Response	
Vocalises or coos/smiles/cries appropriately	5
Spontaneous, irritable cry	4
Cries/screams to pain	3
Grunts/moans to pain	2
No response	1
Motor Response	
Usual mobility/Obeys command	6
Localises pain	5
Withdraws from pain	4
Abnormal flexion	3
Extension to pain	2
No reaction to pain	1

Peak Expiratory Flow Rate - Paediatric

Age	Predicted	75%	50%	33%
2 years	90 L/min	68 L/min	45 L/min	30 L/min
3 years	120 L/min	90 L/min	60 L/min	40 L/min
4 years	150 L/min	113 L/min	75 L/min	50 L/min
5 years	180 L/min	135 L/min	90 L/min	60 L/min
6 years	210 L/min	158 L/min	105 L/min	70 L/min
7 years	240 L/min	182 L/min	120 L/min	80 L/min
8 years	270 L/min	203 L/min	135 L/min	90 L/min
9 years	300 L/min	225 L/min	150 L/min	100 L/min
10 years	330 L/min	248 L/min	165 L/min	110 L/min
11 years	360 L/min	270 L/min	180 L/min	120 L/min
12 years	390 L/min	293 L/min	195 L/min	130 L/min
13 years	420 L/min	315 L/min	210 L/min	140 L/min
14 years	450 L/min	338 L/min	225 L/min	150 L/min
15 years	480 L/min	360 L/min	240 L/min	160 L/min

Peak Expiratory Flow Rate paediatric calculation:
(Age x 30) + 30

AGE PER PAGE	
54	Neonate
55	0 - 6 months
56	1 year
57	2 years
58	3 years
59	4 years
60	5 years
61	6 years
62	7 years
63	8 years
64	9 years
65	10 years
66	11 years
67	12 years
68	13 years
69	14 years
70	15 years

AGE	Average weight	Heart rate	Respiration rate	Defibrillation (J)
Neonate	3.5 Kg	90 - 180	30-60	14
	ETT size	LMA size	I-gel size	LTI size
	N/A	N/A	N/A	N/A

NB - Route relates to scope of practice and is not colour coded

NB - IN calculations inclusive of 0.1 mL for MAD

Cardiac Arrest				
Medication	Dose	Concentration	mL	Route
Epinephrine (1:10000)	35 mcg	1 mg / 10 mL	0.4 mL	IV/IO
Amiodarone	17.5 mg	150 mg / 5 mL	0.6 mL	IV/IO
Fluids				
Medication	Concentration	mL	Route	
Sodium Chloride	0.9% 10 mL/Kg	35 mL	IV/IO	
Sodium Chloride	0.9% 20 mL/Kg	Contraindicated	IV/IO	
Dextrose 10%	50 g / 500 mL	17.5 mL	IV/IO	
Medication	Dose	Concentration	mL	Route
Ceftriaxone	N/A	Contraindicated	N/A	IV
Ceftriaxone	N/A	Contraindicated	N/A	IM
Chlorphenamine	N/A	Contraindicated	N/A	PO
Chlorphenamine	875 mcg	10 mg / 1 mL	0.1 mL	IV/IM
Diazepam PR	2.5 mg	2.5 mg / 1.25 mL Rectal tube	1.3 mL	PR
Diazepam IV	350 mcg	10 mg / 2 mL	0.1 mL	IV
Epinephrine (1:1000)	50 mcg	1 mg / 1 mL	0.1 mL	IM
Epinephrine (1:1000)	2.5 mg	1 mg / 1 mL (nebulised)	2.5 mL	INH
Fentanyl	N/A	Contraindicated	N/A	IN
Glucagon	N/A	Contraindicated	N/A	IM
Glucose Gel	5-10 g	N/A	N/A	Buccal
Hydrocortisone	25 mg	Infusion in 100 mL NaCl	100 mL	IV
Hydrocortisone	25 mg	100 mg / 2 mL	0.5 mL	IM
Ibuprofen	N/A	Contraindicated	N/A	PO
Ibuprofen 6+	N/A	Contraindicated	N/A	PO
Ipratropium Bromide	250 mcg	0.25 mg / 1 mL solution	1 mL	INH
Ketamine	350 mcg	Diluted to 10 mg / 10 mL	0.4 mL	IV
Methoxyflurane	N/A	Contraindicated	N/A	INH
Midazolam	1.25 mg	2.5 mg / 0.5 mL pre-filled syringe	0.3 mL	Buccal
Midazolam	700 mcg	10 mg / 2 mL	0.2 mL	IN
Midazolam	350 mcg	10 mg / 2 mL	0.1 mL	IV/IO
Morphine	175 mcg	10 mg / 10 mL	0.2 mL	IV/IO
Morphine	N/A	Contraindicated	N/A	PO
Naloxone	35 mcg	0.4 mg / 1 mL	0.1 mL	IV/IO/IM/SC
Naloxone	70 mcg	0.4 mg / 1 mL	0.3 mL	IN
Ondansetron	350 mcg	4 mg / 2 mL	0.2 mL	IV/IM
Paracetamol	N/A	Contraindicated	N/A	PO
Paracetamol 6+	N/A	Contraindicated	N/A	PO
Paracetamol	N/A	Contraindicated	N/A	IV
Paracetamol PR	N/A	Contraindicated	N/A	PR
Salbutamol	2.5 mg	2.5 mg / 2.5 mL	2.5 mL	INH

AGE	Average weight	Heart rate	Respiration rate	Defibrillation (J)
6 months	6 Kg	80 - 160	30-60	24
	ETT size	LMA size	I-gel size	LTI size
	N/A	N/A	N/A	N/A

NB - Route relates to scope of practice and is not colour coded

NB - IN calculations inclusive of 0.1 mL for MAD

Cardiac Arrest				
Medication	Dose	Concentration	mL	Route
Epinephrine (1:10000)	60 mcg	1 mg / 10 mL	0.6 mL	IV/IO
Amiodarone	30 mg	150 mg / 5 mL	1 mL	IV/IO
Fluids				
Medication	Concentration		mL	Route
Sodium Chloride	0.9% 10 mL/Kg		60 mL	IV/IO
Sodium Chloride	0.9% 20 mL/Kg		120 mL	IV/IO
Dextrose 10%	50 g / 500 mL		30 mL	IV/IO
Medication	Dose	Concentration	mL	Route
Ceftriaxone	300 mg	1000 mg / 10 mL	3 mL	IV
Ceftriaxone	300 mg	1000 mg / 3.5 mL (Lidocaine)	1.1 mL	IM
Chlorphenamine	N/A	Contraindicated	N/A	PO
Chlorphenamine	1.5 mg	10 mg / 1 mL	0.2 mL	IV/IM
Diazepam PR	2.5 mg	2.5 mg / 1.25 mL Rectal tube	N/A	PR
Diazepam IV	600 mcg	10 mg / 2 mL	0.1 mL	IV
Epinephrine (1:1000)	125 mcg	1 mg / 1 mL	0.1 mL	IM
Epinephrine (1:1000)	2.5 mg	1 mg / 1 mL (nebulised)	2.5 mL	INH
Fentanyl	N/A	Contraindicated	N/A	IN
Glucagon	N/A	Contraindicated	N/A	IM
Glucose Gel	5-10 g	N/A	N/A	Buccal
Hydrocortisone (anaphylaxis)	25 mg	Infusion in 100 mL NaCl	100 mL	IV
Hydrocortisone (Adrenal)	50 mg	Infusion in 100 mL NaCl	100 mL	IV
Hydrocortisone (anaphylaxis)	25 mg	100 mg / 2 mL	0.5 mL	IM
Hydrocortisone (Adrenal)	50 mg	100 mg / 2 mL	1 mL	IM
Ibuprofen	60 mg	100 mg / 5 mL	3 mL	PO
Ibuprofen 6+	60 mg	200 mg / 5 mL	1.5 mL	PO
Ipratropium Bromide	250 mcg	0.25 mg / 1 mL solution	1 mL	INH
Ketamine	600 mcg	Diluted to 10 mg / 10 mL	0.6 mL	IV
Methoxyflurane	N/A	Contraindicated	N/A	INH
Midazolam	2.5 mg	2.5 mg / 0.5 mL pre-filled syringe	0.5 mL	Buccal
Midazolam	1.2 mg	10 mg / 2 mL	0.3 mL	IN
Midazolam	600 mcg	10 mg / 2 mL	0.1 mL	IV/IO
Morphine	300 mcg	10 mg / 10 mL	0.3 mL	IV/IO
Morphine	N/A	Contraindicated	N/A	PO
Naloxone	60 mcg	0.4 mg / 1 mL	0.2 mL	IV/IO/IM/SC
Naloxone	120 mcg	0.4 mg / 1 mL	0.4 mL	IN
Ondansetron	600 mcg	4 mg / 2 mL	0.3 mL	IV/IM
Paracetamol	120 mg	120 mg / 5 mL	5 mL	PO
Paracetamol 6+	120 mg	250 mg / 5 mL	2.4 mL	PO
Paracetamol	45 mg	10 mg / 1 mL	4.5 mL	IV
Paracetamol PR	90 mg	N/A	N/A	PR
Salbutamol	2.5 mg	2.5 mg / 2.5 mL	2.5 mL	INH

AGE	Average weight	Heart rate	Respiration rate	Defibrillation (J)
1	10 Kg	75 - 130	20-30	40
	ETT size	LMA size	I-gel size	LTI size
	N/A	N/A	N/A	N/A

NB - Route relates to scope of practice and is not colour coded

NB - IN calculations inclusive of 0.1 mL for MAD

Cardiac Arrest				
Medication	Dose	Concentration	mL	Route
Epinephrine (1:10000)	100 mcg	1 mg / 10 mL	1 mL	IV/IO
Amiodarone	50 mg	150 mg / 5 mL	1.7 mL	IV/IO
Fluids				
Medication	Concentration		mL	Route
Sodium Chloride	0.9% 10 mL/Kg		100 mL	IV/IO
Sodium Chloride	0.9% 20 mL/Kg		200 mL	IV/IO
Dextrose 10%	50 g / 500 mL		50 mL	IV/IO
Medication	Dose	Concentration	mL	Route
Ceftriaxone	500 mg	1000 mg / 10 mL	5 mL	IV
Ceftriaxone	500 mg	1000 mg / 3.5 mL (Lidocaine)	1.8 mL	IM
Chlorphenamine	N/A	Contraindicated	N/A	PO
Chlorphenamine	2.5 mg	10 mg / 1 mL	0.3 mL	IV/IM
Diazepam PR	2.5 mg	2.5 mg / 1.25 mL Rectal tube	N/A	PR
Diazepam IV	1 mg	10 mg / 2 mL	0.2 mL	IV
Epinephrine (1:1000)	125 mcg	1 mg / 1 mL	0.1 mL	IM
Epinephrine (1:1000)	5 mg	1 mg / 1 mL (nebulised)	5 mL	INH
Fentanyl	15 mcg	0.1 mg / 2 mL	0.4 mL	IN
Glucagon	500 mcg	1 mg / 1 mL	0.5 mL	IM
Glucose Gel	5-10 g	N/A	N/A	Buccal
Hydrocortisone	50 mg	Infusion in 100 mL NaCl	100 mL	IV
Hydrocortisone	50 mg	100 mg / 2 mL	1 mL	IM
Ibuprofen	100 mg	100 mg / 5 mL	5 mL	PO
Ibuprofen 6+	100 mg	200 mg / 5 mL	2.5 mL	PO
Ipratropium Bromide	250 mcg	0.25 mg / 1 mL solution	1 mL	INH
Ketamine	1 mg	Diluted to 10 mg / 10 mL	1 mL	IV
Methoxyflurane	N/A	Contraindicated	N/A	INH
Midazolam	5 mg	5 mg / 1 mL pre-filled syringe	1 mL	Buccal
Midazolam	2 mg	10 mg / 2 mL	0.5 mL	IN
Midazolam	1 mg	10 mg / 2 mL	0.2 mL	IV/IO
Morphine	500 mcg	10 mg / 10 mL	0.5 mL	IV/IO
Morphine	3 mg	10 mg / 5 mL	1.5 mL	PO
Naloxone	100 mcg	0.4 mg / 1 mL	0.3 mL	IV/IO/IM/SC
Naloxone	200 mcg	0.4 mg / 1 mL	0.6 mL	IN
Ondansetron	1 mg	4 mg / 2 mL	0.5 mL	IV/IM
Paracetamol	200 mg	120 mg / 5 mL	8.3 mL	PO
Paracetamol 6+	200 mg	250 mg / 5 mL	4 mL	PO
Paracetamol	150 mg	10 mg / 1 mL	15 mL	IV
Paracetamol PR	180 mg	N/A	N/A	PR
Salbutamol	2.5 mg	2.5 mg / 2.5 mL	2.5 mL	INH

AGE	Average weight	Heart rate	Respiration rate	Defibrillation (J)
2	12 Kg	75 - 130	20-30	48
	ETT size	LMA size	I-gel size	LTI size
	4.5 mm	2	1.5	2

NB - Route relates to scope of practice and is not colour coded

NB - IN calculations inclusive of 0.1 mL for MAD

Cardiac Arrest				
Medication	Dose	Concentration	mL	Route
Epinephrine (1:10000)	120 mcg	1 mg / 10 mL	1.2 mL	IV/IO
Amiodarone	60 mg	150 mg / 5 mL	2 mL	IV/IO

Fluids				
Medication	Concentration	mL	Route	
Sodium Chloride	0.9% 10 mL/Kg	120 mL	IV/IO	
Sodium Chloride	0.9% 20 mL/Kg	240 mL	IV/IO	
Dextrose 10%	50 g / 500 mL	60 mL	IV/IO	

Medication	Dose	Concentration	mL	Route
Ceftriaxone	600 mg	1000 mg / 10 mL	6 mL	IV
Ceftriaxone	600 mg	1000 mg / 3.5 mL (Lidocaine)	2.1 mL	IM
Chlorphenamine	N/A	Contraindicated	N/A	PO
Chlorphenamine	2.5 mg	10 mg / 1 mL	0.3 mL	IV/IM
Diazepam PR	2.5 mg	2.5mg / 1.25 mL Rectal tube	N/A	PR
Diazepam IV	1.2 mg	10 mg / 2 mL	0.2 mL	IV
Epinephrine (1:1000)	125 mcg	1 mg / 1 mL	0.1 mL	IM
Epinephrine (1:1000)	5 mg	1 mg / 1 mL (nebulised)	5 mL	INH
Fentanyl	18 mcg	0.1 mg / 2 mL	0.5 mL	IN
Glucagon	500 mcg	1 mg / 1 mL	0.5 mL	IM
Glucose Gel	5-10 g	N/A	N/A	Buccal
Hydrocortisone	50 mg	Infusion in 100 mL NaCl	100 mL	IV
Hydrocortisone	50 mg	100 mg / 2 mL	1 mL	IM
Ibuprofen	120 mg	100 mg / 5 mL	6 mL	PO
Ibuprofen 6+	120 mg	200 mg / 5 mL	3 mL	PO
Ipratropium Bromide	250 mcg	0.25 mg / 1 mL solution	1 mL	INH
Ketamine	1.2 mg	Diluted to 10 mg / 10 mL	1.2 mL	IV
Methoxyflurane	N/A	Contraindicated	N/A	INH
Midazolam	5 mg	5 mg / 1 mL pre-filled syringe	1 mL	Buccal
Midazolam	2.4 mg	10 mg / 2 mL	0.6 mL	IN
Midazolam	1.2 mg	10 mg / 2 mL	0.2 mL	IV/IO
Morphine	600 mcg	10 mg / 10 mL	0.6 mL	IV/IO
Morphine	3.6 mg	10 mg / 5 mL	1.8 mL	PO
Naloxone	120 mcg	0.4 mg / 1 mL	0.3 mL	IV/IO/IM/SC
Naloxone	240 mcg	0.4 mg / 1 mL	0.7 mL	IN
Ondansetron	1.2 mg	4 mg / 2 mL	0.6 mL	IV/IM
Paracetamol	240 mg	120 mg / 5 mL	10 mL	PO
Paracetamol 6+	240 mg	250 mg / 5 mL	4.8 mL	PO
Paracetamol	180 mg	10 mg / 1 mL	18 mL	IV
Paracetamol PR	180 mg	N/A	N/A	PR
Salbutamol	2.5 mg	2.5 mg / 2.5 mL	2.5 mL	INH

AGE	Average weight	Heart rate	Respiration rate	Defibrillation (J)
3	14 Kg	75 - 130	20-30	56
	ETT size	LMA size	I-gel size	LTI size
	4.5 mm	2	2	2

NB - Route relates to scope of practice and is not colour coded

NB - IN calculations inclusive of 0.1 mL for MAD

Cardiac Arrest				
Medication	Dose	Concentration	mL	Route
Epinephrine (1:10000)	140 mcg	1 mg / 10 mL	1.4 mL	IV/IO
Amiodarone	70 mg	150 mg / 5 mL	2.3 mL	IV/IO
Fluids				
Medication	Concentration		mL	Route
Sodium Chloride	0.9% 10 mL/Kg		140 mL	IV/IO
Sodium Chloride	0.9% 20 mL/Kg		280 mL	IV/IO
Dextrose 10%	50 g / 500 mL		70 mL	IV/IO
Medication	Dose	Concentration	mL	Route
Ceftriaxone	700 mg	1000 mg / 10 mL	7 mL	IV
Ceftriaxone	700 mg	1000 mg / 3.5 mL (Lidocaine)	2.5 mL	IM
Chlorphenamine	N/A	Contraindicated	N/A	PO
Chlorphenamine	2.5 mg	10 mg / 1 mL	0.3 mL	IV/IM
Diazepam PR	5 mg	5 mg / 1.25 mL Rectal tube	N/A	PR
Diazepam IV	1.4 mg	10 mg / 2 mL	0.3 mL	IV
Epinephrine (1:1000)	125 mcg	1 mg / 1 mL	0.1 mL	IM
Epinephrine (1:1000)	5 mg	1 mg / 1 mL (nebulised)	5 mL	INH
Fentanyl	21 mcg	0.1 mg / 2 mL	0.5 mL	IN
Glucagon	500 mcg	1 mg / 1 mL	0.5 mL	IM
Glucose Gel	5-10 g	N/A	N/A	Buccal
Hydrocortisone	50 mg	Infusion in 100 mL NaCl	100 mL	IV
Hydrocortisone	50 mg	100 mg / 2 mL	1 mL	IM
Ibuprofen	140 mg	100 mg / 5 mL	7 mL	PO
Ibuprofen 6+	140 mg	200 mg / 5 mL	3.5 mL	PO
Ipratropium Bromide	250 mcg	0.25 mg / 1 mL solution	1 mL	INH
Ketamine	1.4 mg	Diluted to 10 mg / 10 mL	1.4 mL	IV
Methoxyflurane	N/A	Contraindicated	N/A	INH
Midazolam	5 mg	5 mg / 1 mL pre-filled syringe	1 mL	Buccal
Midazolam	2.8 mg	10 mg / 2 mL	0.7 mL	IN
Midazolam	1.4 mg	10 mg / 2 mL	0.3 mL	IV/IO
Morphine	700 mcg	10 mg / 10 mL	0.7 mL	IV/IO
Morphine	4.2 mg	10 mg / 5 mL	2.1 mL	PO
Naloxone	140 mcg	0.4 mg / 1 mL	0.4 mL	IV/IO/IM/SC
Naloxone	280 mcg	0.4 mg / 1 mL	0.8 mL	IN
Ondansetron	1.4 mg	4 mg / 2 mL	0.7 mL	IV/IM
Paracetamol	280 mg	120 mg / 5 mL	11.7 mL	PO
Paracetamol 6+	280 mg	250 mg / 5 mL	5.6 mL	PO
Paracetamol	210 mg	10 mg / 1 mL	21 mL	IV
Paracetamol PR	180 mg	N/A	N/A	PR
Salbutamol	2.5 mg	2.5 mg / 2.5 mL	2.5 mL	INH

AGE	Average weight	Heart rate	Respiration rate	Defibrillation (J)
4	16 Kg	70 - 110	16 - 24	64
	ETT size	LMA size	I-gel size	LTI size
	5 mm	2	2	2

NB - Route relates to scope of practice and is not colour coded

NB - IN calculations inclusive of 0.1 mL for MAD

Cardiac Arrest				
Medication	Dose	Concentration	mL	Route
Epinephrine (1:10000)	160 mcg	1 mg / 10 mL	1.6 mL	IV/IO
Amiodarone	80 mg	150 mg / 5 mL	2.7 mL	IV/IO

Fluids				
Medication	Concentration		mL	Route
Sodium Chloride	0.9% 10 mL/Kg		160 mL	IV/IO
Sodium Chloride	0.9% 20 mL/Kg		320 mL	IV/IO
Dextrose 10%	50 g / 500 mL		80 mL	IV/IO

Medication	Dose	Concentration	mL	Route
Ceftriaxone	800 mg	1000 mg / 10 mL	8 mL	IV
Ceftriaxone	800 mg	1000 mg / 3.5 mL (Lidocaine)	2.8 mL	IM
Chlorphenamine	N/A	Contraindicated	N/A	PO
Chlorphenamine	2.5 mg	10 mg / 1 mL	0.3 mL	IV/IM
Diazepam PR	5 mg	5 mg / 2.5 mL Rectal tube	N/A	PR
Diazepam IV	1.6 mg	10 mg / 2 mL	0.3 mL	IV
Epinephrine (1:1000)	125 mcg	1 mg / 1 mL	0.1 mL	IM
Epinephrine (1:1000)	5 mg	1 mg / 1 mL (nebulised)	5 mL	INH
Fentanyl	24 mcg	0.1 mg / 2 mL	0.6 mL	IN
Glucagon	500 mcg	1 mg / 1 mL	0.5 mL	IM
Glucose Gel	5-10 g	N/A	N/A	Buccal
Hydrocortisone	50 mg	Infusion in 100 mL NaCl	100 mL	IV
Hydrocortisone	50 mg	100 mg / 2 mL	1 mL	IM
Ibuprofen	160 mg	100 mg / 5 mL	8 mL	PO
Ibuprofen 6+	160 mg	200 mg / 5 mL	4 mL	PO
Ipratropium Bromide	250 mcg	0.25 mg / 1 mL solution	1 mL	INH
Ketamine	1.6 mg	Diluted to 10 mg / 10 mL	1.6 mL	IV
Methoxyflurane	N/A	Contraindicated	N/A	INH
Midazolam	5 mg	5 mg / 1 mL pre-filled syringe	1 mL	Buccal
Midazolam	3.2 mg	10 mg / 2 mL	0.7 mL	IN
Midazolam	1.6 mg	10 mg / 2 mL	0.3 mL	IV/IO
Morphine	800 mcg	10 mg / 10 mL	0.8 mL	IV/IO
Morphine	4.8 mg	10 mg / 5 mL	2.4 mL	PO
Naloxone	160 mcg	0.4 mg / 1 mL	0.4 mL	IV/IO/IM/SC
Naloxone	320 mcg	0.4 mg / 1 mL	0.9 mL	IN
Ondansetron	1.6 mg	4 mg / 2 mL	0.8 mL	IV/IM
Paracetamol	320 mg	120 mg / 5 mL	13.3 mL	PO
Paracetamol 6+	320 mg	250 mg / 5 mL	6.4 mL	PO
Paracetamol	240 mg	10 mg / 1 mL	24 mL	IV
Paracetamol PR	360 mg	N/A	N/A	PR
Salbutamol	2.5 mg	2.5 mg / 2.5 mL	2.5 mL	INH

AGE	Average weight	Heart rate	Respiration rate	Defibrillation (J)
5	18 Kg	70 - 110	16 - 24	72
	ETT size	LMA size	I-gel size	LTI size
	5 mm	2	2	2

NB - Route relates to scope of practice and is not colour coded
NB - IN calculations inclusive of 0.1 mL for MAD

Cardiac Arrest				
Medication	Dose	Concentration	mL	Route
Epinephrine (1:10000)	180 mcg	1 mg / 10 mL	1.8 mL	IV/IO
Amiodarone	90 mg	150 mg / 5 mL	3 mL	IV/IO
Fluids				
Medication	Concentration		mL	Route
Sodium Chloride	0.9% 10 mL/Kg		180 mL	IV/IO
Sodium Chloride	0.9% 20 mL/Kg		360 mL	IV/IO
Dextrose 10%	50 g / 500 mL		90 mL	IV/IO
Medication	Dose	Concentration	mL	Route
Ceftriaxone	900 mg	1000 mg / 10 mL	9 mL	IV
Ceftriaxone	900 mg	1000 mg / 3.5 mL (Lidocaine)	3.2 mL	IM
Chlorphenamine	N/A	Contraindicated	N/A	PO
Chlorphenamine	2.5 mg	10 mg / 1 mL	0.3 mL	IV/IM
Diazepam PR	5 mg	5 mg / 2.5 mL Rectal tube	N/A	PR
Diazepam IV	1.8 mg	10 mg / 2 mL	0.4 mL	IV
Epinephrine (1:1000)	125 mcg	1 mg / 1 mL	0.1 mL	IM
Epinephrine (1:1000)	5 mg	1 mg / 1 mL (nebulised)	5 mL	INH
Fentanyl	27 mcg	0.1 mg / 2 mL	0.6 mL	IN
Glucagon	500 mcg	1 mg / 1 mL	0.5 mL	IM
Glucose Gel	5-10 g	N/A	N/A	Buccal
Hydrocortisone	50 mg	Infusion in 100 mL NaCl	100 mL	IV
Hydrocortisone	50 mg	100 mg / 2 mL	1 mL	IM
Ibuprofen	180 mg	100 mg / 5 mL	9 mL	PO
Ibuprofen 6+	180 mg	200 mg / 5 mL	4.5 mL	PO
Ipratropium Bromide	250 mcg	0.25 mg / 1 mL solution	1 mL	INH
Ketamine	1.8 mg	Diluted to 10 mg / 10 mL	1.8 mL	IV
Methoxyflurane	3 mL	N/A	3 mL	INH
Midazolam	7.5 mg	7.5 mg / 1.5 mL pre-filled syringe	1.5 mL	Buccal
Midazolam	3.6 mg	10 mg / 2 mL	0.8 mL	IN
Midazolam	1.8 mg	10 mg / 2 mL	0.4 mL	IV/IO
Morphine	900 mcg	10 mg / 10 mL	0.9 mL	IV/IO
Morphine	5.4 mg	10 mg / 5 mL	2.7 mL	PO
Naloxone	180 mcg	0.4 mg / 1 mL	0.5 mL	IV/IO/IM/SC
Naloxone	360 mcg	0.4 mg / 1 mL	1 mL	IN
Ondansetron	1.8 mg	4 mg / 2 mL	0.9 mL	IV/IM
Paracetamol	360 mg	120 mg / 5 mL	15 mL	PO
Paracetamol 6+	360 mg	250 mg / 5 mL	7.2 mL	PO
Paracetamol	270 mg	10 mg / 1 mL	27 mL	IV
Paracetamol PR	360 mg	N/A	N/A	PR
Salbutamol	5 mg	5 mg / 2.5 mL	2.5 mL	INH

AGE	Average weight	Heart rate	Respiration rate	Defibrillation (J)
6	25 Kg	70 - 110	16-24	100
	ETT size	LMA size	I-gel size	LTI size
	5.5 mm	2.5	2	2

NB - Route relates to scope of practice and is not colour coded

NB - IN calculations inclusive of 0.1 mL for MAD

Cardiac Arrest				
Medication	Dose	Concentration	mL	Route
Epinephrine (1:10000)	250 mcg	1 mg / 10 mL	2.5 mL	IV/IO
Amiodarone	125 mg	150 mg / 5 mL	4.2 mL	IV/IO
Fluids				
Medication	Concentration		mL	Route
Sodium Chloride	0.9% 10 mL/Kg		250 mL	IV/IO
Sodium Chloride	0.9% 20 mL/Kg		500 mL	IV/IO
Dextrose 10%	50 g / 500 mL		125 mL	IV/IO
Medication	Dose	Concentration	mL	Route
Ceftriaxone	1.25 g	1000 mg / 10 mL	12.5 mL	IV
Ceftriaxone	1.25 g	1000 mg / 3.5 mL (Lidocaine)	4.4 mL	IM
Chlorphenamine	2 mg	Tablet	N/A	PO
Chlorphenamine	5 mg	10 mg / 1 mL	0.5 mL	IV/IM
Diazepam PR	5 mg	5 mg / 2.5 mL Rectal tube	N/A	PR
Diazepam IV	2.5 mg	10 mg / 2 mL	0.5 mL	IV
Epinephrine (1:1000)	250 mcg	1 mg / 1 mL	0.3 mL	IM
Epinephrine (1:1000)	5 mg	1 mg / 1 mL (nebulised)	5 mL	INH
Fentanyl	38 mcg	0.1 mg / 2 mL	0.9 mL	IN
Glucagon	500 mcg	1 mg / 1 mL	0.5 mL	IM
Glucose Gel	5-10 g	N/A	N/A	Buccal
Hydrocortisone	100 mg	Infusion in 100 mL NaCl	100 mL	IV
Hydrocortisone	100 mg	100 mg / 2 mL	2 mL	IM
Ibuprofen	250 mg	100 mg / 5 mL	12.5 mL	PO
Ibuprofen 6+	250 mg	200 mg / 5 mL	6.3 mL	PO
Ipratropium Bromide	250 mcg	0.25 mg / 1 mL solution	1 mL	INH
Ketamine	2.5 mg	Diluted to 10 mg / 10 mL	2.5 mL	IV
Methoxyflurane	3 mL	N/A	3 mL	INH
Midazolam	7.5 mg	7.5 mg / 1.5 mL pre-filled syringe	1.5 mL	Buccal
Midazolam	5 mg	10 mg / 2 mL	1.1 mL	IN
Midazolam	2.5 mg	10 mg / 2 mL	0.5 mL	IV/IO
Morphine	1.25 mg	10 mg / 10 mL	1.3 mL	IV/IO
Morphine	7.5 mg	10 mg / 5 mL	3.8 mL	PO
Naloxone	250 mcg	0.4 mg / 1 mL	0.6 mL	IV/IO/IM/SC
Naloxone	500 mcg	0.4 mg / 1 mL	1.4 mL	IN
Ondansetron	2.5 mg	4 mg / 2 mL	1.3 mL	IV/IM
Paracetamol	500 mg	120 mg / 5 mL	20.8 mL	PO
Paracetamol 6+	500 mg	250 mg / 5 mL	10 mL	PO
Paracetamol	375 mg	10 mg / 1 mL	37.5 mL	IV
Paracetamol PR	360 mg	N/A	N/A	PR
Salbutamol	5 mg	5 mg/2.5 mL	2.5 mL	INH

AGE	Average weight	Heart rate	Respiration rate	Defibrillation (J)
7	28 Kg	60 - 90	14-20	112
	ETT size	LMA size	I-gel size	LTI size
	5.5 mm	2.5	2	2.5

NB - Route relates to scope of practice and is not colour coded

NB - IN calculations inclusive of 0.1 mL for MAD

Cardiac Arrest				
Medication	Dose	Concentration	mL	Route
Epinephrine (1:10000)	280 mcg	1 mg / 10 mL	2.8 mL	IV/IO
Amiodarone	140 mg	150 mg / 5 mL	4.7 mL	IV/IO
Fluids				
Medication	Concentration	mL	Route	
Sodium Chloride	0.9% 10 mL/Kg	280 mL	IV/IO	
Sodium Chloride	0.9% 20 mL/Kg	560 mL	IV/IO	
Dextrose 10%	50g / 500 mL	140 mL	IV/IO	
Medication	Dose	Concentration	mL	Route
Ceftriaxone	1.4 g	1000 mg / 10 mL	14 mL	IV
Ceftriaxone	1.4 g	1000 mg / 3.5 mL (Lidocaine)	4.9 mL	IM
Chlorphenamine	2 mg	Tablet	N/A	PO
Chlorphenamine	5 mg	10 mg / 1 mL	0.5 mL	IV/IM
Diazepam PR	5 mg	5 mg / 2.5 mL Rectal tube	N/A	PR
Diazepam IV	2.8 mg	10 mg / 2 mL	0.6 mL	IV
Epinephrine (1:1000)	250 mcg	1 mg / 1 mL	0.3 mL	IM
Epinephrine (1:1000)	5 mg	1 mg / 1 mL (nebulised)	5 mL	INH
Fentanyl	42 mcg	0.1 mg / 2 mL	0.9 mL	IN
Glucagon	500 mcg	1 mg / 1 mL	0.5 mL	IM
Glucose Gel	5-10 g	N/A	N/A	Buccal
Hydrocortisone	100 mg	Infusion in 100 mL NaCl	100 mL	IV
Hydrocortisone	100 mg	100 mg / 2 mL	2 mL	IM
Ibuprofen	280 mg	100 mg / 5 mL	14 mL	PO
Ibuprofen 6+	280 mg	200 mg / 5 mL	7 mL	PO
Ipratropium Bromide	250 mcg	0.25 mg / 1 mL solution	1 mL	INH
Ketamine	2.8 mg	Diluted to 10 mg / 10 mL	2.8 mL	IV
Methoxyflurane	3 mL	N/A	3 mL	INH
Midazolam	7.5 mg	7.5 mg / 1.5 mL pre-filled syringe	1.5 mL	Buccal
Midazolam	5 mg	10 mg / 2 mL	1.1 mL	IN
Midazolam	2.5 mg	10 mg / 2 mL	0.5 mL	IV/IO
Morphine	1.4 mg	10 mg / 10 mL	1.4 mL	IV/IO
Morphine	8.4 mg	10 mg / 5 mL	4.2 mL	PO
Naloxone	280 mcg	0.4 mg / 1 mL	0.7 mL	IV/IO/IM/SC
Naloxone	560 mcg	0.4 mg / 1 mL	1.5 mL	IN
Ondansetron	2.8 mg	4 mg / 2 mL	1.4 mL	IV/IM
Paracetamol	560 mg	120 mg / 5 mL	23.3 mL	PO
Paracetamol 6+	560 mg	250 mg / 5 mL	11.2 mL	PO
Paracetamol	420 mg	10 mg / 1 mL	42 mL	IV
Paracetamol PR	360 mg	N/A	N/A	PR
Salbutamol	5 mg	5 mg / 2.5 mL	2.5 mL	INH

AGE	Average weight	Heart rate	Respiration rate	Defibrillation (J)
8	31 Kg	60 - 90	14-20	124
	ETT size	LMA size	I-gel size	LTI size
	6 mm	2.5	2	2.5

NB - Route relates to scope of practice and is not colour coded

NB - IN calculations inclusive of 0.1 mL for MAD

Cardiac Arrest				
Medication	Dose	Concentration	mL	Route
Epinephrine (1:10000)	310 mcg	1 mg / 10 mL	3.1 mL	IV/IO
Amiodarone	155 mg	150 mg / 5 mL	5.2 mL	IV/IO
Fluids				
Medication	Concentration		mL	Route
Sodium Chloride	0.9% 10 mL/Kg		310 mL	IV/IO
Sodium Chloride	0.9% 20 mL/Kg		620 mL	IV/IO
Dextrose 10%	50 g / 500 mL		155 mL	IV/IO
Medication	Dose	Concentration	mL	Route
Ceftriaxone	1.55 g	1000 mg / 10 mL	15.5 mL	IV
Ceftriaxone	1.55 g	1000 mg / 3.5 mL (Lidocaine)	5.4 mL	IM
Chlorphenamine	2 mg	Tablet	N/A	PO
Chlorphenamine	5 mg	10 mg / 1 mL	0.5 mL	IV/IM
Diazepam PR	10 mg	10 mg / 2.5 mL Rectal tube	N/A	PR
Diazepam IV	3.1 mg	10 mg / 2 mL	0.6 mL	IV
Epinephrine (1:1000)	250 mcg	1 mg / 1 mL	0.3 mL	IM
Epinephrine (1:1000)	5 mg	1 mg / 1 mL (nebulised)	5 mL	INH
Fentanyl	47 mcg	0.1 mg / 2 mL	1 mL	IN
Glucagon	500 mcg	1 mg / 1 mL	0.5 mL	IM
Glucose Gel	5-10 g	N/A	N/A	Buccal
Hydrocortisone	100 mg	Infusion in 100 mL NaCl	100 mL	IV
Hydrocortisone	100 mg	100 mg / 2 mL	2 mL	IM
Ibuprofen	310 mg	100 mg / 5 mL	15.5 mL	PO
Ibuprofen 6+	310 mg	200 mg / 5 mL	7.8 mL	PO
Ipratropium Bromide	250 mcg	0.25 mg / 1 mL solution		INH
Ketamine	3.1 mg	Diluted to 10 mg / 10 mL	3.1 mL	IV
Methoxyflurane	3 mL	N/A	3 mL	INH
Midazolam	7.5 mg	7.5 mg / 1.5 mL pre-filled syringe	1.5 mL	Buccal
Midazolam	5 mg	10 mg / 2 mL	1.1 mL	IN
Midazolam	2.5 mg	10 mg / 2 mL	0.5 mL	IV/IO
Morphine	1.55 mg	10 mg / 10 mL	1.6 mL	IV/IO
Morphine	9.3 mg	10 mg / 5 mL	4.7 mL	PO
Naloxone	310 mcg	0.4 mg / 1 mL	0.8 mL	IV/IO/IM/SC
Naloxone	620 mcg	0.4 mg / 1 mL	1.7 mL	IN
Ondansetron	3.1 mg	4 mg / 2 mL	1.6 mL	IV/IM
Paracetamol	620 mg	120 mg / 5 mL	25.8 mL	PO
Paracetamol 6+	620 mg	250 mg / 5 mL	12.4 mL	PO
Paracetamol	465 mg	10 mg / 1 mL	46.5 mL	IV
Paracetamol PR	360 mg	N/A	N/A	PR
Salbutamol	5 mg	5 mg / 2.5 mL	2.5 mL	INH

AGE	Average weight	Heart rate	Respiration rate	Defibrillation (J)
9	34 Kg	60 - 90	14-20	136
	ETT size	LMA size	I-gel size	LTI size
	6 mm	2.5	2.5	2.5

NB - Route relates to scope of practice and is not colour coded

NB - IN calculations inclusive of 0.1 mL for MAD

Cardiac Arrest				
Medication	Dose	Concentration	mL	Route
Epinephrine (1:10000)	340 mcg	1 mg / 10 mL	3.4 mL	IV/IO
Amiodarone	170 mg	150 mg / 5 mL	5.7 mL	IV/IO
Fluids				
Medication	Concentration	mL	Route	
Sodium Chloride	0.9% 10 mL/Kg	340 mL	IV/IO	
Sodium Chloride	0.9% 20 mL/Kg	680 mL	IV/IO	
Dextrose 10%	50 g / 500 mL	170 mL	IV/IO	
Medication	Dose	Concentration	mL	Route
Ceftriaxone	1.7 g	1000 mg / 10 mL	17 mL	IV
Ceftriaxone	1.7 g	1000 mg / 3.5 mL (Lidocaine)	6 mL	IM
Chlorphenamine	2 mg	Tablet	N/A	PO
Chlorphenamine	5 mg	10 mg / 1 mL	0.5 mL	IV/IM
Diazepam PR	10 mg	10 mg / 2.5 mL Rectal tube	N/A	PR
Diazepam IV	3.4 mg	10 mg / 2 mL	0.7 mL	IV
Epinephrine (1:1000)	500 mcg	1 mg / 1 mL	0.5 mL	IM
Epinephrine (1:1000)	5 mg	1 mg / 1 mL (nebulised)	5 mL	INH
Fentanyl	51 mcg	0.1 mg / 2 mL	1.1 mL	IN
Glucagon	1 mg	1 mg / 1 mL	1 mL	IM
Glucose Gel	10 g – 20 g	N/A	N/A	Buccal
Hydrocortisone	100 mg	Infusion in 100 mL NaCl	100 mL	IV
Hydrocortisone	100 mg	100 mg / 2 mL	2 mL	IM
Ibuprofen	340 mg	100 mg / 5 mL	17 mL	PO
Ibuprofen 6+	340 mg	200 mg / 5 mL	8.5 mL	PO
Ipratropium Bromide	250 mcg	0.25 mg / 1 mL solution		INH
Ketamine	3.4 mg	Diluted to 10 mg / 10 mL	3.4 mL	IV
Methoxyflurane	3 mL	N/A	3 mL	INH
Midazolam	7.5 mg	7.5 mg / 1.5 mL pre-filled syringe	1.5 mL	Buccal
Midazolam	5 mg	10 mg / 2 mL	1.1 mL	IN
Midazolam	2.5 mg	10 mg / 2 mL	0.5 mL	IV/IO
Morphine	1.7 mg	10 mg / 10 mL	1.7 mL	IV/IO
Morphine	10 mg	10 mg / 5 mL	5 mL	PO
Naloxone	340 mcg	0.4 mg / 1 mL	0.9 mL	IV/IO/IM/SC
Naloxone	680 mcg	0.4 mg / 1 mL	1.8 mL	IN
Ondansetron	3.4 mg	4 mg / 2 mL	1.7 mL	IV/IM
Paracetamol	680 mg	120 mg / 5 mL	28.3 mL	PO
Paracetamol 6+	680 mg	250 mg / 5 mL	13.6 mL	PO
Paracetamol	510 mg	10 mg / 1 mL	51 mL	IV
Paracetamol PR	N/A	Not indicated	N/A	PR
Salbutamol	5 mg	5 mg / 2.5 mL	2.5 mL	INH

AGE	Average weight	Heart rate	Respiration rate	Defibrillation (J)
10	37 Kg	60 - 90	14-20	148
	ETT size	LMA size	I-gel size	LTi size
	6.5 mm	2.5	2.5	3

NB - Route relates to scope of practice and is not colour coded

NB - IN calculations inclusive of 0.1 mL for MAD

Cardiac Arrest				
Medication	Dose	Concentration	mL	Route
Epinephrine (1:10000)	370 mcg	1 mg / 10 mL	3.7 mL	IV/IO
Amiodarone	185 mg	150 mg / 5 mL	6.2 mL	IV/IO

Fluids			
Medication	Concentration	mL	Route
Sodium Chloride	0.9% 10 mL/Kg	370 mL	IV/IO
Sodium Chloride	0.9% 20 mL/Kg	740 mL	IV/IO
Dextrose 10%	50 g / 500 mL	185 mL	IV/IO

Medication	Dose	Concentration	mL	Route
Ceftriaxone	1.85 g	1000 mg / 10 mL	18.5 mL	IV
Ceftriaxone	1.85 g	1000 mg / 3.5 mL (Lidocaine)	6.5 mL	IM
Chlorphenamine	2 mg	Tablet	N/A	PO
Chlorphenamine	5 mg	10 mg / 1 mL	0.5 mL	IV/IM
Diazepam PR	10 mg	10 mg / 2 mL Rectal tube	N/A	PR
Diazepam IV	3.7 mg	10 mg / 2 mL	0.7 mL	IV
Epinephrine (1:1000)	500 mcg	1 mg / 1 mL	0.5 mL	IM
Epinephrine (1:1000)	5 mg	1 mg / 1 mL (nebulised)	5 mL	INH
Fentanyl	56 mcg	0.1 mg / 2 mL	1.2 mL	IN
Glucagon	1 mg	1 mg / 1 mL	1 mL	IM
Glucose Gel	10 g – 20 g	N/A	N/A	Buccal
Hydrocortisone	100 mg	Infusion in 100 mL NaCl	100 mL	IV
Hydrocortisone	100 mg	100 mg / 2 mL	2 mL	IM
Ibuprofen	370 mg	100 mg / 5 mL	18.5 mL	PO
Ibuprofen 6+	370 mg	200 mg / 5 mL	9.3 mL	PO
Ipratropium Bromide	250 mcg	0.25 mg / 1 mL solution	1 mL	INH
Ketamine	3.7 mg	Diluted to 10 mg / 10 mL	3.7 mL	IV
Methoxyflurane	3 mL	N/A	3 mL	INH
Midazolam	10 mg	10 mg / 1 mL & 10 mg / 2 mL pre-filled syringe	1 or 2 mL	Buccal
Midazolam	5 mg	10 mg / 2 mL	1.1 mL	IN
Midazolam	2.5 mg	10 mg / 2 mL	0.5 mL	IV/IO
Morphine	1.85 mg	10 mg / 10 mL	1.9 mL	IV/IO
Morphine	10 mg	10 mg / 5 mL	5 mL	PO
Naloxone	370 mcg	0.4 mg / 1 mL	0.9 mL	IV/IO/IM/SC
Naloxone	740 mcg	0.4 mg / 1 mL	2 mL	IN
Ondansetron	3.7 mg	4 mg / 2 mL	1.9 mL	IV/IM
Paracetamol	740 mg	120 mg / 5 mL	30.8 mL	PO
Paracetamol 6+	740 mg	250 mg / 5 mL	14.8 mL	PO
Paracetamol	555 mg	10 mg / 1 mL	55.5 mL	IV
Paracetamol PR	N/A	Not indicated	N/A	PR
Salbutamol	5 mg	5 mg / 2.5 mL	2.5 mL	INH

AGE	Average weight	Heart rate	Respiration rate	Defibrillation (J)
11	40 Kg	60 - 90	14-20	150
	ETT size	LMA size	I-gel size	LTI size
	6.5 mm	3	3	3

NB - Route relates to scope of practice and is not colour coded

NB - IN calculations inclusive of 0.1 mL for MAD

Cardiac Arrest				
Medication	Dose	Concentration	mL	Route
Epinephrine (1:10000)	400 mcg	1 mg / 10 mL	4 mL	IV/IO
Amiodarone	200 mg	150 mg / 5 mL	6.7 mL	IV/IO

Fluids				
Medication	Concentration	mL	Route	
Sodium Chloride	0.9% 10 mL/Kg	400 mL	IV/IO	
Sodium Chloride	0.9% 20 mL/Kg	800 mL	IV/IO	
Dextrose 10%	50 g / 500 mL	200 mL	IV/IO	

Medication	Dose	Concentration	mL	Route
Ceftriaxone	2 g	1000 mg / 10 mL	20 mL	IV
Ceftriaxone	2 g	1000 mg / 3.5 mL (Lidocaine)	7 mL	IM
Chlorphenamine	2 mg	Tablet	N/A	PO
Chlorphenamine	5 mg	10 mg / 1 mL	0.5 mL	IV/IM
Diazepam PR	10 mg	10 mg / 2.5 mL Rectal tube	N/A	PR
Diazepam IV	4 mg	10 mg / 2 mL	0.8 mL	IV
Epinephrine (1:1000)	500 mcg	1 mg / 1 mL	0.5 mL	IM
Epinephrine (1:1000)	5 mg	1 mg / 1 mL (nebulised)	5 mL	INH
Fentanyl	60 mcg	0.1 mg / 2 mL	1.3 mL	IN
Glucagon	1 mg	1 mg / 1 mL	1 mL	IM
Glucose Gel	10 g – 20 g	N/A	N/A	Buccal
Hydrocortisone	100 mg	Infusion in 100 mL NaCl	100 mL	IV
Hydrocortisone	100 mg	100 mg / 2 mL	2 mL	IM
Ibuprofen	400 mg	100 mg / 5 mL	20 mL	PO
Ibuprofen 6+	400 mg	200 mg / 5 mL	10 mL	PO
Ipratropium Bromide	250 mcg	0.25 mg / 1 mL solution	1 mL	INH
Ketamine	4 mg	Diluted to 10 mg / 10 mL	4 mL	IV
Methoxyflurane	3 mL	N/A	3 mL	INH
Midazolam	10 mg	10 mg / 1 mL & 10 mg / 2 mL pre-filled syringe	1 or 2 mL	Buccal
Midazolam	5 mg	10 mg / 2 mL	1.1 mL	IN
Midazolam	2.5 mg	10 mg / 2 mL	0.5 mL	IV/IO
Morphine	2 mg	10 mg / 10 mL	2 mL	IV/IO
Morphine	10 mg	10 mg / 5 mL	5 mL	PO
Naloxone	400 mcg	0.4 mg / 1 mL	1 mL	IV/IO/IM/SC
Naloxone	800 mcg	0.4 mg / 1 mL	2.1 mL	IN
Ondansetron	4 mg	4 mg / 2 mL	2 mL	IV/IM
Paracetamol	800 mg	120 mg / 5 mL	33.3 mL	PO
Paracetamol 6+	800 mg	250 mg / 5 mL	16 mL	PO
Paracetamol	600 mg	10 mg / 1 mL	60 mL	IV
Paracetamol PR	N/A	Not indicated	N/A	PR
Salbutamol	5 mg	5 mg / 2.5 mL	2.5 mL	INH

AGE	Average weight	Heart rate	Respiration rate	Defibrillation (J)
12	43 Kg	60 - 90	14-20	150
	ETT size	LMA size	I-gel size	LTI size
	7.0 mm	3	3	3

NB - Route relates to scope of practice and is not colour coded

NB - IN calculations inclusive of 0.1 mL for MAD

Cardiac Arrest				
Medication	Dose	Concentration	mL	Route
Epinephrine (1:10000)	430 mcg	1 mg / 10 mL	4.3 mL	IV/IO
Amiodarone	215 mg	150 mg / 5 mL	7.2 mL	IV/IO

Fluids			
Medication	Concentration	mL	Route
Sodium Chloride	0.9% 10 mL/Kg	430 mL	IV/IO
Sodium Chloride	0.9% 20 mL/Kg	860 mL	IV/IO
Dextrose 10%	50 g / 500 mL	215 mL	IV/IO

Medication	Dose	Concentration	mL	Route
Ceftriaxone	2 g	1000 mg / 10 mL	20 mL	IV
Ceftriaxone	2 g	1000 mg / 3.5 mL (Lidocaine)	7 mL	IM
Chlorphenamine	4 mg	Tablet	N/A	PO
Chlorphenamine	10 mg	10 mg / 1 mL	1 mL	IV/IM
Diazepam PR	10 mg	10 mg / 2 mL Rectal tube	N/A	PR
Diazepam IV	4.3 mg	10 mg / 2 mL	0.9 mL	IV
Epinephrine (1:1000)	500 mcg	1 mg / 1 mL	0.5 mL	IM
Epinephrine (1:1000)	5 mg	1 mg / 1 mL (nebulised)	5 mL	INH
Fentanyl	65 mcg	0.1 mg / 2 mL	1.4 mL	IN
Glucagon	1 mg	1 mg / 1 mL	1 mL	IM
Glucose Gel	10 g – 20 g	N/A	N/A	Buccal
Hydrocortisone	100 mg	Infusion in 100 mL NaCl	100 mL	IV
Hydrocortisone	100 mg	100 mg / 2 mL	2 mL	IM
Ibuprofen	400 mg	100 mg / 5 mL	20 mL	PO
Ibuprofen 6+	400 mg	200 mg / 5 mL	10 mL	PO
Ipratropium Bromide	500 mcg	0.25 mg / 1 mL solution	2 mL	INH
Ketamine	4.3 mg	Diluted to 10 mg / 10 mL	4.3 mL	IV
Methoxyflurane	3 mL	N/A	3 mL	INH
Midazolam	10 mg	10 mg / 1 mL & 10 mg / 2 mL pre-filled syringe	1 or 2 mL	Buccal
Midazolam	5 mg	10 mg / 2 mL	1.1 mL	IN
Midazolam	2.5 mg	10 mg / 2 mL	0.5 mL	IV/IO
Morphine	2 mg	10 mg / 10 mL	2 mL	IV/IO
Morphine	10 mg	10 mg / 5 mL	5 mL	PO
Naloxone	400 mcg	0.4 mg / 1 mL	1 mL	IV/IO/IM/SC
Naloxone	800 mcg	0.4 mg / 1 mL	2.1 mL	IN
Ondansetron	4 mg	4 mg / 2 mL	2 mL	IV/IM
Paracetamol	860 mg	120 mg / 5 mL	35.8 mL	PO
Paracetamol 6+	860 mg	250 mg / 5 mL	17.2 mL	PO
Paracetamol	645 mg	10 mg / 1 mL	64.5 mL	IV
Paracetamol PR	N/A	Not indicated	N/A	PR
Salbutamol	5 mg	5 mg / 2.5 mL	2.5 mL	INH

AGE	Average weight	Heart rate	Respiration rate	Defibrillation (J)
13	46 Kg	60 - 90	14-20	150
	ETT size	LMA size	I-gel size	LTI size
	7.0 mm	3	3	3

NB - Route relates to scope of practice and is not colour coded

NB - IN calculations inclusive of 0.1 mL for MAD

Cardiac Arrest				
Medication	Dose	Concentration	mL	Route
Epinephrine (1:10000)	460 mcg	1 mg / 10 mL	4.6 mL	IV/IO
Amiodarone	230 mg	150 mg / 5 mL	7.7 mL	IV/IO
Fluids				
Medication	Concentration		mL	Route
Sodium Chloride	0.9% 10 mL/Kg		460 mL	IV/IO
Sodium Chloride	0.9% 20 mL/Kg		920 mL	IV/IO
Dextrose 10%	50 g / 500 mL		230 mL	IV/IO
Medication	Dose	Concentration	mL	Route
Ceftriaxone	2 g	1000 mg / 10 mL	20 mL	IV
Ceftriaxone	2 g	1000 mg / 3.5 mL (Lidocaine)	7 mL	IM
Chlorphenamine	4 mg	Tablet	N/A	PO
Chlorphenamine	10 mg	10 mg / 1 mL	1 mL	IV/IM
Diazepam PR	10 mg	10 mg / 2 mL Rectal tube	N/A	PR
Diazepam IV	4.6 mg	10 mg / 2 mL	0.9 mL	IV
Epinephrine (1:1000)	500 mcg	1 mg / 1 mL	0.5 mL	IM
Epinephrine (1:1000)	5 mg	1 mg / 1 mL (nebulised)	5 mL	INH
Fentanyl	69 mcg	0.1 mg / 2 mL	1.5 mL	IN
Glucagon	1 mg	1 mg / 1 mL	1 mL	IM
Glucose Gel	10 g – 20 g	N/A	N/A	Buccal
Hydrocortisone	100 mg	Infusion in 100 mL NaCl	100 mL	IV
Hydrocortisone	100 mg	100 mg / 2 mL	2 mL	IM
Ibuprofen	400 mg	100 mg / 5 mL	20 mL	PO
Ibuprofen 6+	400 mg	200 mg / 5 mL	10 mL	PO
lpratropium Bromide	500 mcg	0.25 mg / 1 mL solution	2 mL	INH
Ketamine	4.6 mg	Diluted to 10 mg / 10 mL	4.6 mL	IV
Methoxyflurane	3 mL	N/A	3 mL	INH
Midazolam	10 mg	10 mg / 1 mL & 10 mg / 2 mL pre-filled syringe	1 or 2 mL	Buccal
Midazolam	5 mg	10 mg / 2 mL	1.1 mL	IN
Midazolam	2.5 mg	10 mg / 2 mL	0.5 mL	IV/IO
Morphine	2 mg	10 mg / 10 mL	2 mL	IV/IO
Morphine	10 mg	10 mg / 5 mL	5 mL	PO
Naloxone	400 mcg	0.4 mg / 1 mL	1 mL	IV/IO/IM/SC
Naloxone	800 mcg	0.4 mg / 1 mL	2.1 mL	IN
Ondansetron	4 mg	4 mg / 2 mL	2 mL	IV/IM
Paracetamol	920 mg	120 mg / 5 mL	38.3 mL	PO
Paracetamol 6+	920 mg	250 mg / 5 mL	18.4 mL	PO
Paracetamol	690 mg	10 mg / 1 mL	69 mL	IV
Paracetamol PR	N/A	Not indicated	N/A	PR
Salbutamol	5 mg	5 mg / 2.5 mL	2.5 mL	INH

AGE	Average weight	Heart rate	Respiration rate	Defibrillation (J)
14	49 Kg	60 - 90	14-20	150
	ETT size	LMA size	I-gel size	LTI size
	7.5 mm	3	3	4

NB - Route relates to scope of practice and is not colour coded

NB - IN calculations inclusive of 0.1 mL for MAD

Cardiac Arrest				
Medication	Dose	Concentration	mL	Route
Epinephrine (1:10000)	490 mcg	1 mg / 10 mL	4.9 mL	IV/IO
Amiodarone	245 mg	150 mg / 5 mL	8.2 mL	IV/IO
Fluids				
Medication	Concentration		mL	Route
Sodium Chloride	0.9% 10 mL/Kg		490 mL	IV/IO
Sodium Chloride	0.9% 20 mL/Kg		980 mL	IV/IO
Dextrose 10%	50 g / 500 mL		245 mL	IV/IO
Medication	Dose	Concentration	mL	Route
Ceftriaxone	2 g	1000 mg / 10 mL	20 mL	IV
Ceftriaxone	2 g	1000 mg / 3.5 mL (Lidocaine)	7 mL	IM
Chlorphenamine	4 mg	Tablet	N/A	PO
Chlorphenamine	10 mg	10 mg / 1 mL	1 mL	IV/IM
Diazepam PR	10 mg	10 mg / 2.5 mL Rectal tube	N/A	PR
Diazepam IV	4.9 mg	10 mg / 2 mL	1 mL	IV
Epinephrine (1:1000)	500 mcg	1 mg / 1 mL	0.5 mL	IM
Epinephrine (1:1000)	5 mg	1 mg / 1 mL (nebulised)	5 mL	INH
Fentanyl	74 mcg	0.1 mg / 2 mL	1.6 mL	IN
Glucagon	1 mg	1 mg / 1 mL	1 mL	IM
Glucose Gel	10 g – 20 g	N/A	N/A	Buccal
Hydrocortisone	100 mg	Infusion in 100 mL NaCl	100 mL	IV
Hydrocortisone	100 mg	100 mg / 2 mL	2 mL	IM
Ibuprofen	400 mg	100 mg / 5 mL	20 mL	PO
Ibuprofen 6+	400 mg	200 mg / 5 mL	10 mL	PO
Ipratropium Bromide	500 mcg	0.25 mg / 1 mL solution	2 mL	INH
Ketamine	4.9 mg	Diluted to 10 mg / 10 mL	4.9 mL	IV
Methoxyflurane	3 mL	N/A	3 mL	INH
Midazolam	10 mg	10 mg / 1 mL & 10 mg / 2 mL pre-filled syringe	1 or 2 mL	Buccal
Midazolam	5 mg	10 mg / 2 mL	1.1 mL	IN
Midazolam	2.5 mg	10 mg / 2 mL	0.5 mL	IV/IO
Morphine	2 mg	10 mg / 10 mL	2 mL	IV/IO
Morphine	10 mg	10 mg / 5 mL	5 mL	PO
Naloxone	400 mcg	0.4 mg / 1 mL	1 mL	IV/IO/IM/SC
Naloxone	800 mcg	0.4 mg / 1 mL	2.1 mL	IN
Ondansetron	4 mg	4 mg / 2 mL	2 mL	IV/IM
Paracetamol	980 mg	120 mg / 5 mL	40.8 mL	PO
Paracetamol 6+	980 mg	250 mg / 5 mL	19.6 mL	PO
Paracetamol	735 mg	10 mg / 1 mL	73.5 mL	IV
Paracetamol PR	N/A	Not indicated	N/A	PR
Salbutamol	5 mg	5 mg / 2.5 mL	2.5 mL	INH

AGE	Average weight	Heart rate	Respiration rate	Defibrillation (J)
15	52 Kg	60 - 90	14-20	150
	ETT size	LMA size	I-gel size	LTI size
	7.5 mm	4	3	4

NB - Route relates to scope of practice and is not colour coded

NB - IN calculations inclusive of 0.1 mL for MAD

Cardiac Arrest				
Medication	Dose	Concentration	mL	Route
Epinephrine (1:10000)	520 mcg	1 mg / 10 mL	5.2 mL	IV/IO
Amiodarone	260 mg	150 mg / 5 mL	8.7 mL	IV/IO
Fluids				
Medication	Concentration	mL	Route	
Sodium Chloride	0.9% 10 mL/Kg	520 mL	IV/IO	
Sodium Chloride	0.9% 20 mL/Kg	1040 mL	IV/IO	
Dextrose 10%	50 g / 500 mL	250 mL	IV/IO	
Medication	Dose	Concentration	mL	Route
Ceftriaxone	2 g	1000 mg / 10 mL	20 mL	IV
Ceftriaxone	2 g	1000 mg / 3.5 mL (Lidocaine)	7 mL	IM
Chlorphenamine	4 mg	Tablet	N/A	PO
Chlorphenamine	10 mg	10 mg / 1 mL	1 mL	IV/IM
Diazepam PR	10 mg	10 mg / 2.5 mL Rectal tube	N/A	PR
Diazepam IV	5 mg	10 mg / 2 mL	1 mL	IV
Epinephrine (1:1000)	500 mcg	1 mg / 1 mL	0.5 mL	IM
Epinephrine (1:1000)	5 mg	1 mg / 1 mL (nebulised)	5 mL	INH
Fentanyl	78 mcg	0.1 mg / 2 mL	1.7 mL	IN
Glucagon	1 mg	1 mg / 1 mL	1 mL	IM
Glucose Gel	10 g – 20 g	N/A	N/A	Buccal
Hydrocortisone	100 mg	Infusion in 100 mL NaCl	100 mL	IV
Hydrocortisone	100 mg	100 mg / 2 mL	2 mL	IM
Ibuprofen	400 mg	100 mg / 5 mL	20 mL	PO
Ibuprofen 6+	400 mg	200 mg / 5 mL	10 mL	PO
Ipratropium Bromide	500 mcg	0.25 mg / 1 mL solution		INH
Ketamine	5.2 mg	Diluted to 10 mg / 10 mL	5.2 mL	IV
Methoxyflurane	3 mL	N/A	3 mL	INH
Midazolam	10 mg	10 mg / 1 mL & 10 mg / 2 mL pre-filled syringe	1 or 2 mL	Buccal
Midazolam	5 mg	10 mg / 2 mL	1.1 mL	IN
Midazolam	2.5 mg	10 mg / 2 mL	0.5 mL	IV/IO
Morphine	2 mg	10 mg / 10 mL	2 mL	IV/IO
Morphine	10 mg	10 mg / 5 mL	5 mL	PO
Naloxone	400 mcg	0.4 mg / 1 mL	1 mL	IV/IO/IM/SC
Naloxone	800 mcg	0.4 mg / 1 mL	2.1 mL	IN
Ondansetron	4 mg	4 mg / 2 mL	2 mL	IV/IM
Paracetamol	1000 mg	120 mg / 5 mL	41.7 mL	PO
Paracetamol 6+	1000 mg	250 mg / 5 mL	20 mL	PO
Paracetamol	780 mg	10 mg / 1 mL	78 mL	IV
Paracetamol PR	N/A	Not indicated	N/A	PR
Salbutamol	5 mg	5 mg / 2.5 mL	2.5 mL	INH

OPERATIONS

72	Breaking bad news
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78	Triage Sort
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80	Resuscitation management
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BREAKING BAD NEWS AFTER A SUDDEN DEATH

- Attempt to prepare the family if possible
- Inform the bereaved family as soon as possible once death is confirmed
- Give clear and accurate information
- Use clear understandable language
 - Use the word “Dead” rather than passed away, gone etc
 - avoid medical terminology
- Before you leave the scene, ensure either family members are present or the Gardaí to provide emotional and practical support to loved ones.
- Never give false hope.
- Be aware of your own appearance (bloodstained gloves etc.)

Five step approach to breaking bad news

1. Prepare yourself...find a quiet space; avoid delivering news in a hallway.
2. Make a connection - introduce yourself and take your time (what do they know already?)
3. Warn them - then tell them (gently and slowly in manageable chunks)
4. Acknowledge the shock and deal with person's concerns
5. Follow up with practical support (tell them what happens next)

Don't forget to look after yourself - Breaking bad news is difficult.

Verification of Death

Physiological signs of death that must be checked to ascertain that death has occurred:

- Absence of carotid pulse
- Absence of heart sounds over one minute
- Absence of respiratory movements and breath sounds over one minute
- Fixed, dilated pupils (unresponsive to light)
- No response to painful stimuli (e.g. sternal rub)
- Asystole on ECG monitor

Definitive indicators of death criteria that death is unequivocal:

- Decomposition
- Decapitation
- Obvious rigor mortis
- Obvious pooling
- Incineration
- Injuries totally incompatible with life
- Unwitnessed traumatic cardiac arrest following blunt trauma

Note:

- Complete the verification of death form

Ref: PHECC POL026 Council Policy for verification of death by paramedics and advanced paramedics - v1

Major Emergency Operations

First Practitioner on site

Practitioner 1:

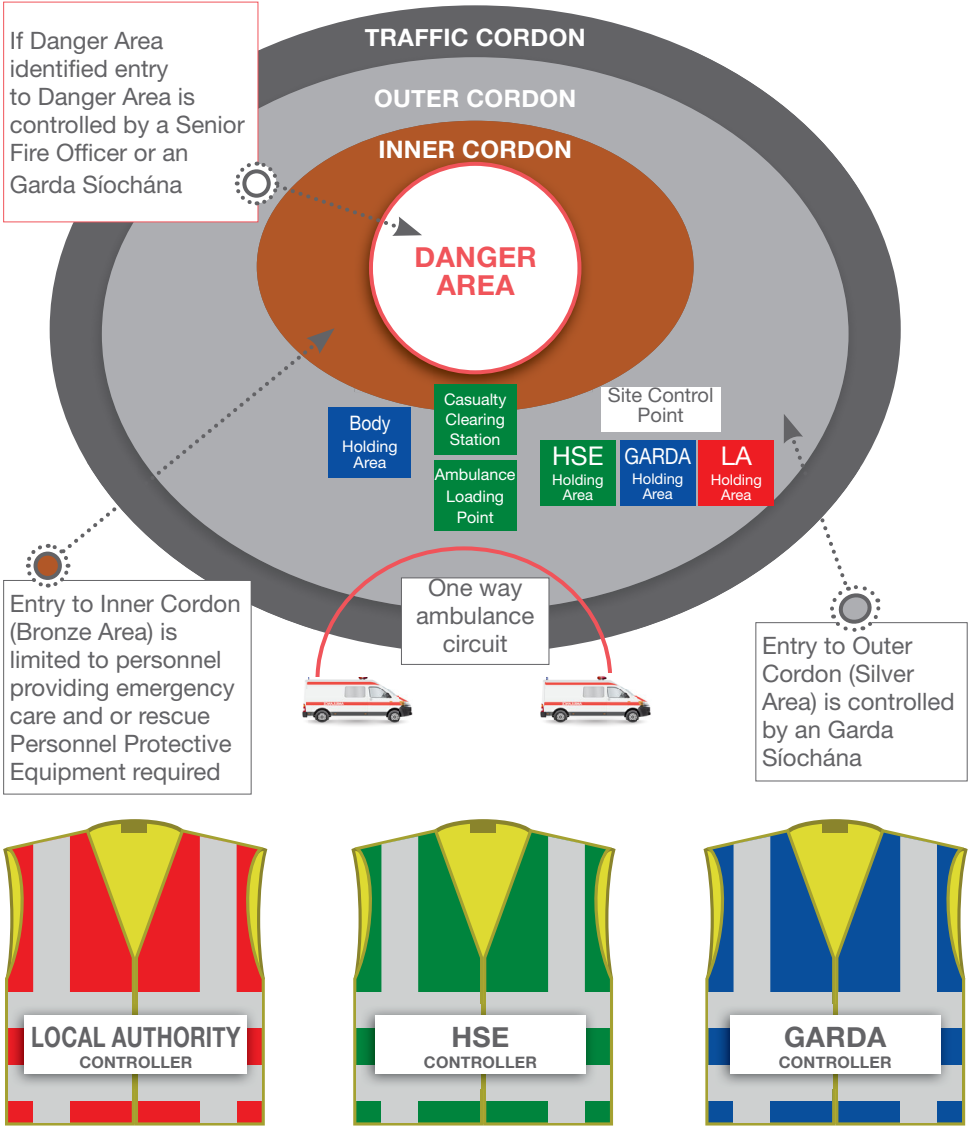
- a) Park at the scene as safety permits and in liaison with Fire and Garda if present.
- b) Leave blue lights on as vehicle acts as forward Control Point pending the arrival of the Mobile Control Vehicle.
- c) Confirm arrival at scene with Ambulance Control and provide an initial visual report stating 'Major Emergency Standby or Declared'.
- d) Maintain communications with Practitioner 2.
- e) Leave the ignition key in place and remain with vehicle.
- f) Carry out **Communications Officer** role until relieved.

Practitioner 2:

- a) Carry out a scene survey.
- b) Give situation report to Ambulance Control using **METHANE** message format.
- c) Carry out **HSE Controller of Operations** role until relieved.
- d) Liaise with Garda Controller of Operations and Local Authority Controller of Operations.
- e) Select location for Holding Area.
- f) Set up key areas in conjunction with other principle response agencies on site:
 - Site Control Point
 - Casualty Clearing Station
 - Ambulance Parking Point

If first on scene do not provide care or transport as this will inhibit the early and orderly organisation of on-scene command.

Major Emergency Operations (cont.)



Major Emergency Operations (cont.)

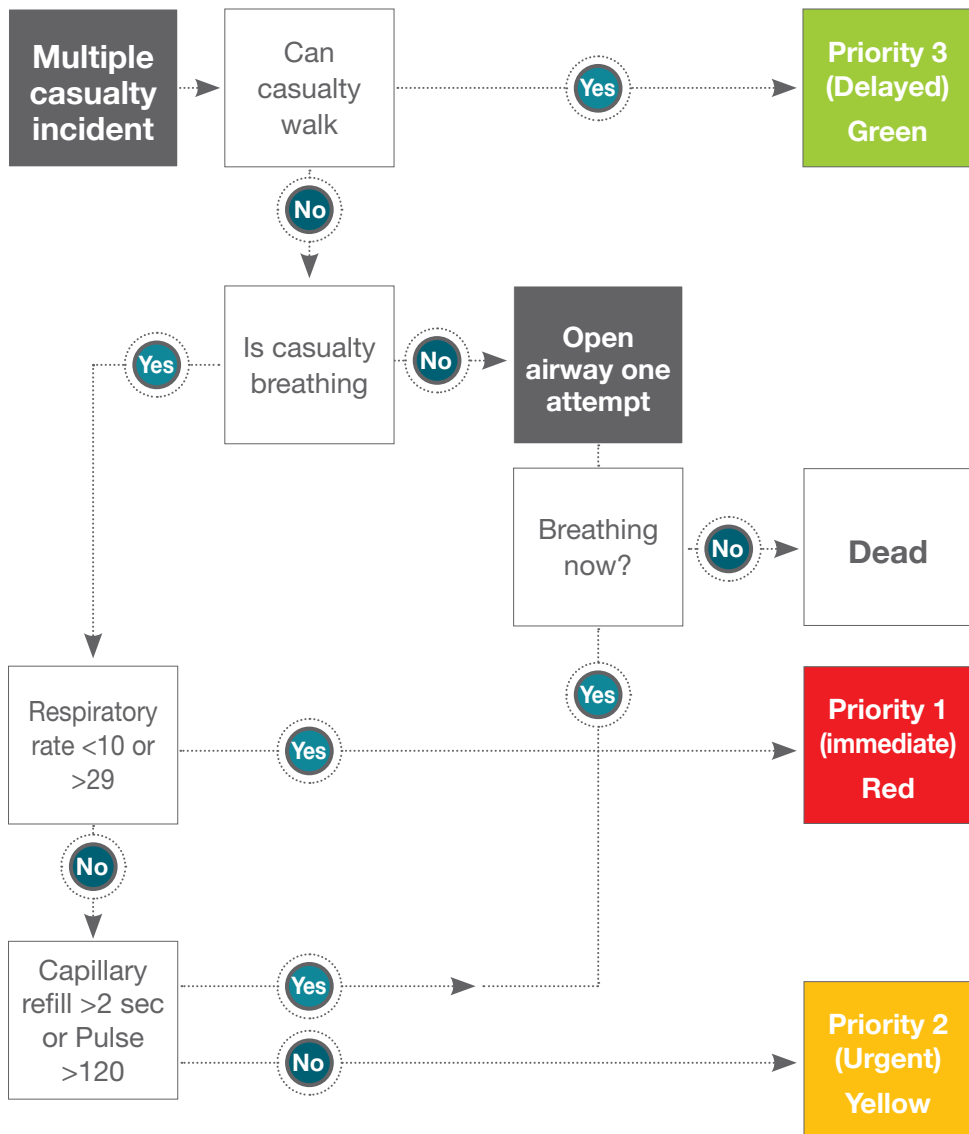
The priority is to establish CSCATTT in that order

C	Command & Control
S	Safety
C	Communications
A	Assessment
T	Triage
T	Treatment
T	Transport

METHANE message format

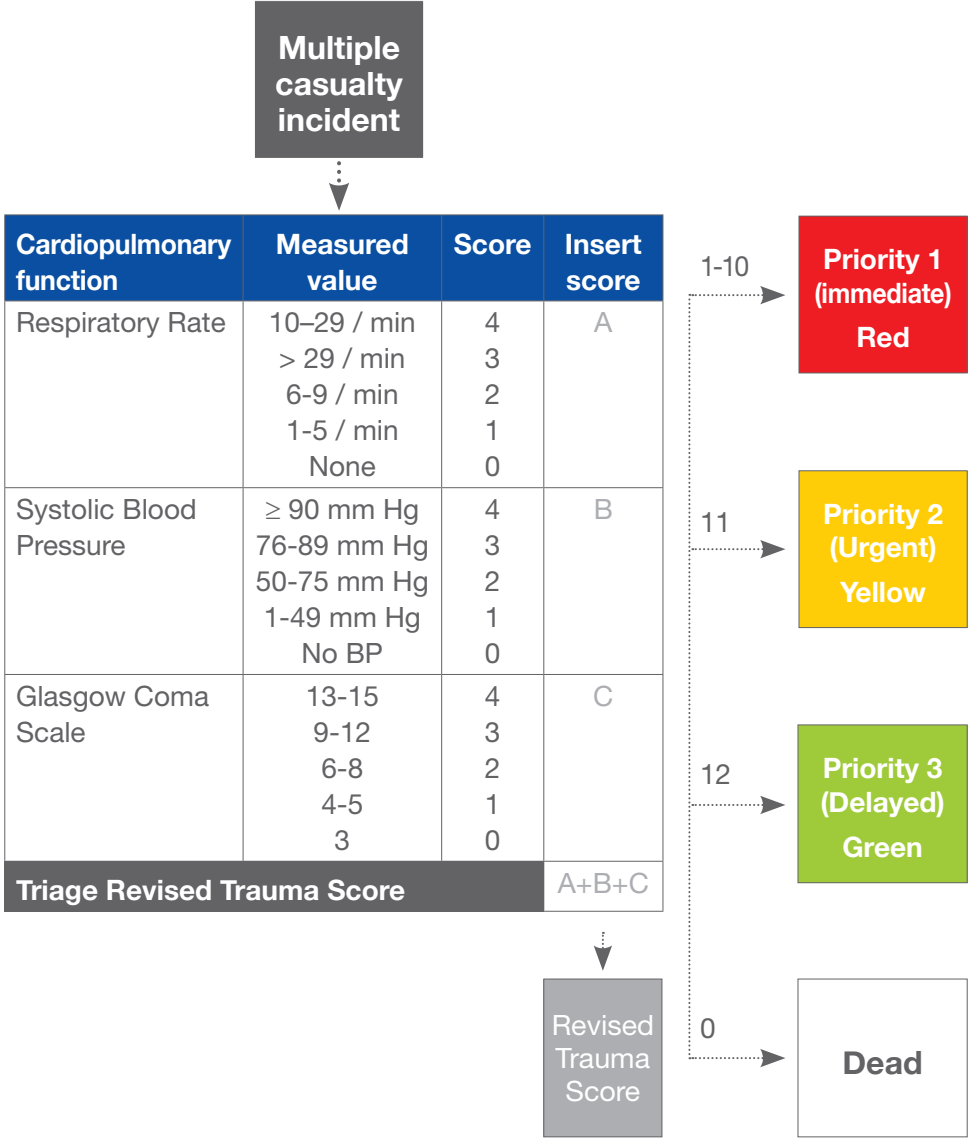
M	Major emergency declared or standby
E	Exact location
T	Type of incident
H	Hazards involved
A	Access to and from incident
N	Number of casualties (estimated or exact)
E	Emergency services on site (or required)

Triage Sieve



Triage is a dynamic process.

Triage Sort



Oxygen Cylinder Capacity

CD cylinder – 460 litres	Approximate
15 L/min	= 30 minutes
12 L/min	= 38 minutes
6 L/min	= 76 minutes
F cylinder – 1,360 litres	
15 L/min	= 1 hour 30 minutes
12 L/min	= 1 hour 53 minutes
6 L/min	= 3 hours 46 minutes
E cylinder – 680 litres	
15 L/min	= 45 minutes
12 L/min	= 57 minutes
6 L/min	= 1 hour 53 minutes
ZX cylinder – 3040 litres	
15 L/min	= 3 hours 23 minutes
12 L/min	= 6 hours 13 minutes
6 L/min	= 8 hours 27 minutes

Initial Response for Team Resuscitation

1

Identification: Position 1

Role: Airway and ventilatory support & initial team leader

Location: Inside BLS triangle at patient's head

1. Position defibrillator / monitor
2. Attach defibrillator pads and operate defibrillator / monitor (if awaiting arrival of P3)
3. Basic airway management (manoeuvre, suction & adjunct)
4. Assemble ventilation equipment and ventilate (30:2)
5. Insert advanced airway (ventilate once every 6 sec / ETCO₂)
6. Team leader (until P4 assigned)

2

Identification: Position 2

Role: Chest compressor

Location: Inside BLS triangle at patient's side

1. Position BLS response bag and suction
2. Initiate patient assessment
3. Commence compression only CPR (Continue until P1 ready to ventilate)
4. Alternate chest compressions with P3 (P1 until P3 arrival)

3

Identification: Position 3

Role: Chest compressor & AED operator

Location: Inside BLS triangle at patient's side

1. Alternate compressions with P2
2. Operate AED / Monitor
3. Turn on metronome (if available)
4. Monitor time / cycles



Team Arrival at Cardiac Arrest

4

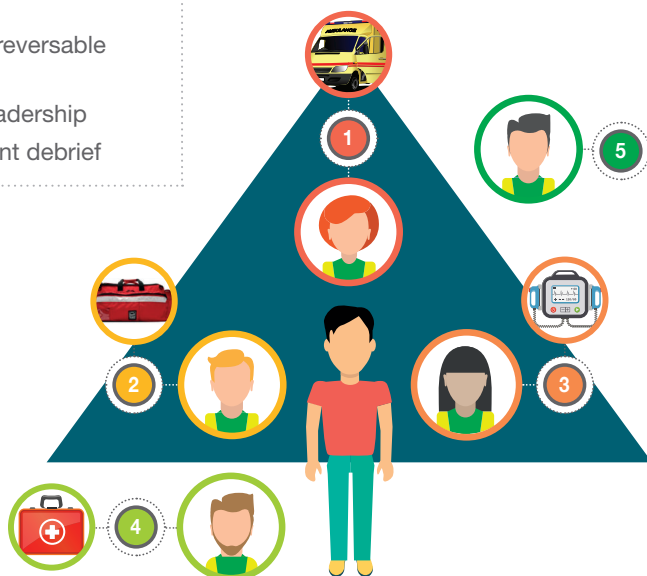
Identification: Position 4**Role:** Cardiac arrest team leader**Location:** Outside the BLS triangle (ideally at patient's feet with a clear view of the patient, team and monitor)

1. Positive exchange of team leader
2. Position ALS bag (AP)
3. Take handover from P1
4. Monitor BLS quality
5. Initiate IV/IO access & administers medications (AP)
6. Intubate if clinically warranted (AP)
7. Communicate with family / family liaison
8. Identify and treat reversible causes (H's & T's)
9. Provide clinical leadership
10. Conduct post event debrief

5

Identification: Position 5**Role:** Family & Team Support**Location:** Outside the BLS trinagle

1. Family Liaison
2. Patient Hx / meds
3. Manage equipment
4. Documentation
5. Plan removal (if transporting)



Cardiac Arrest Checklist

Optimise / establish the basics	
360° access - Optimise available space	☐
High quality compressions ongoing	☐
Defib attached / Confirm manual or AED mode / Clearly visible screen	☐
O ₂ cylinder attached / O ₂ sufficient / BVM reservoir inflating	☐
Chest rise adequate	☐
Optimise structure team resuscitation approach	☐
Activate additional resources (if required)	
Team leader identified	☐
Identify roles (clear designation)	☐
Optimise high quality compressions / minimal interruptions <10 sec	
- Correct hand position ☐	- Correct depth (min 5 cm) ☐
- Full chest recoil ☐	- CPR feedback device / metronome turned on (if available) ☐
Optimise airway & ventilatory management / stepwise approach	
ETCO ₂ waveform is present and monitored (Target value is at least 10-20 mmHg)	☐
- If absent check SGA / ETT placement	☐
- If ETCO ₂ remains <8-10 check CPR quality	
Optimise ventilations rate	
- 30:2 without SGA / ETT or 1 ventilation every 6 sec with SGA / ETT	☐
- Monitor bilateral air entry / Gastric distention	☐
Optimise haemodynamic support & manage reversible causes	
IO or IV access obtained (all appropriate medications considered)	
Mechanical compression device considered & applied (if available)	
Hypoxia ☐	Tension pneumothorax ☐
Hypovolemia ☐	Tamponade ☐
Hydrogen ion acidosis ☐	Thrombus (cardiac / pulmonary) ☐
Hypothermia ☐	Toxins ☐
Hypo / hyperkalaemia ☐	Trauma ☐
If considering cessation of resuscitation	
- Review presenting history ☐	- Ensure team discussion ☐
- Consider family presence ☐	- Consider patient / family wishes ☐

Post ROSC Checklist

(Prior to moving patient)

Optimise / Establish the basics	☐
Review & verbalise A irway B reathing C irculation D isability Status	☐
Establish baseline vital signs prior to moving the patient	☐
Consider aeromedical support (if applicable)	☐
Optimise Ventilation post ROSC	☐
Monitor ventilation rate (1 ventilation every 6 sec / avoid hyperventilation)	
Monitor continuous ETCO₂ (Target 35-45 mmHg)	☐
Facemask travels with bag-valve no matter what airway is in place	☐
Optimise oxygenation post ROSC	☐
Titrate O ₂ to SpO ₂ between 94-98%	
Optimise hemodynamic status post ROSC	☐
If SBP<90 mmHg, IV NaCL 250 ml bolus (consider passive leg raise)	
If symptomatic bradycardia consider atropine 0.5 - 0.6mcg (3-5 min intervals PRN)	☐
If symptomatic tachy-arrhythmia consider Amiodarone infusion (150 mg over 10 min in 5% Dextrose)	☐
Profound hypotension, cardiogenic shock, consider Epinephrine 10 mcg. Only if SBP remains <90 mmHg + HR remains <100 + no radial output repeat PRN	☐
Maintain supine position during extrication / 10° head up as soon as practical	☐
Optimise neurological status & temperature post ROSC	☐
Maintain temp <36°C	
Check blood glucose and treat accordingly	☐
Optimise acute coronary syndrome (ACS) management post ROSC	☐
Obtain 12-lead ECG	
Consider is receiving facility PPCI capable	☐
Consider if patient is PPCI appropriate	☐

Safe Aeromedical Helicopter Usage

There are currently two services in Ireland providing aeromedical transport, the EAS (Emergency Aeromedical Service) and the Irish Coast Guard.

Different aircraft are operated by each organisation. Regardless of the type, the same safety precautions must be adhered to.

Requesting a Helicopter:

Should you require helicopter evacuation, your request should go to ambulance control, who will liaise with the @NEOC Aeromedical Desk.

An accurate patient location is vital in getting the helicopter to your location with minimal delay. If you have elected to begin your journey to hospital by road it is not too late to request a helicopter and the @NEOC Aeromedical Desk will provide a rendezvous point for you to meet the helicopter.

Helicopter is on the way:

Where possible, the patient must remain in the ambulance with the doors closed. Ideally you will have the patient on an appropriate lifting/immobilisation device which will aid swift loading of the patient on to the helicopter. Although it is not your responsibility to prepare a landing site the following criteria are required:

1. Flat area approximately the size of half a football field (the bigger the better)
2. No wires crossing the landing area
3. Landing zone free of livestock and pedestrians
4. If you have the opportunity, walk the area and collect FOD (Foreign Object Debris) such as traffic cones, clothing, rubbish or anything that can blow up in the helicopter's strong downwash and cause a hazard to the helicopter or those around it.

Safe Aeromedical Helicopter Usage...contd.

Confirm the 4 point checklist with ambulance control.

Sports fields often make ideal landing sites.

The landing:

The helicopter crew will generally land into wind. While it is landing make sure no civilians approach the landing area. If safety and security is compromised the crew will not land.

Never approach a helicopter unless signalled by the crew to do so.

Loading the patient:

The AP or Crewman will come to you and decide whether the aircraft will shut down or a rotors-running loading will take place. If a rotors-running loading is to take place there are a number of hazards to consider. Listen to the brief given to you by the AP/ Crewman and adhere to all directions in relation to safety, PPE etc.

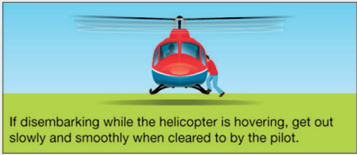
Take-Off:

Clinical personnel should remain at the landing zone for 5 minutes after the helicopter has taken off, this way if the helicopter develops a technical fault early in the flight the crew can return to the landing zone and offload the patient to you.

Safe Aeromedical Helicopter Usage...contd.

The following graphic illustrates key safety points when operating with helicopters.

Approaching or Leaving a Helicopter



COMMUNICATIONS

	COMMUNICATIONS
88	ASHICE radio report for ED
89	IMIST - AMBO Handover protocol

Radio Report for Emergency Dept.

When patients require urgent medical attention on arrival at the ED it is essential that an appropriate patient report precedes their arrival.

The report needs to be clear and concise yet transfer all relevant information. It is good practice to identify your clinical level when communicating with the ED. The recommended format is ASHICE.

A	Age	
S	Sex	
H	History	
I	Injury	
C	Condition	Pulse: BP:/.....mmHg Resps: Sets:% GCS: E.....V.....M..... BG:mmol/L Temp:°C Life threatening - ☐ Resus team required standing by Serious non-life threat - ☐ Request rapid assessment needed Non-serious Or non-life threat ☐
E	ETA	

IMIST-AMBO Handover Protocol

I	Identification of patient	
M	Mechanism of injury or medical complaint	
I	Injuries or illness related to complaint	
S	Signs	Pulse: BP:/.....mmHg Resps: Sets:% GCS: E.....V.....M..... BG:mmol/L Temp:°C
T	Treatment and trends	

Pause for questions

A	Allergies	
M	Medication	
B	Background	
O	Other information	

Any further questions

Ambulance practitioners are asked to:

1. Review handover details pre-arrival
2. Maintain a 20-30 second period where the patient remains on the stretcher and deliver IMIST information uninterrupted
3. Encourage questions on completion of IMIST and again at the end of AMBO
4. Treating practitioner to remain with the patient during handover

ED clinicians are asked to:

1. Ensure the handover remains interruption free
2. Ask questions during the two provided opportunities, between IMIST and AMBO and upon completion of IMIST-AMBO
3. Observe 'Hands off, Eyes on', a 20-30 second period provided when the patient stays on the ambulance trolley until the IMIST information is delivered
4. Identify team leaders

MEDICATIONS

92	MEDICATIONS	
	Important Medication Information	
93	A	Adenosine
94		Amiodarone
96		Aspirin
97		Atropine
98	C	Ceftriaxone
102		Chlorphenamine
105		Clopidogrel
106		Cyclizine
107	D	Dextrose
110		Diazepam
113	E	Enoxaparin
114		Epinephrine
117	F	Fentanyl
119		Furosemide
120	G	Glucagon
121		Glucose Gel
122		Glyceryl Trinitrate
123		Glycopyrronium Bromide
124	H	Haloperidol
125		Hartmann's Solution
126		Hydrocortisone
128		Hyoscine Butylbromide
129	I	Ibuprofen
132		Ipratropium Bromide
133	K	Ketamine
136	L	Lidocaine
137		Lorazepam
138	M	Magnesium Sulphate
139		Methoxyflurane
140		Midazolam Solution
144		Morphine
147	N	Naloxone
150		Nifedipine
151		Nitrous Oxide & Oxygen
152	O	Ondansetron
154		Oxygen
156		Oxytocin
157	P	Paracetamol
162	S	Salbutamol
163		Sodium Bicarbonate
164		Sodium Chloride 0.9%
167	T	Tenecteplase
169		Ticagrelor
170		Tranexamic Acid

Important Medication Information

The following pages contain quick references for medications. Calculations for **paediatric doses are based on a specific concentration** of the medication, as outlined on the top of each page.

The formula for estimating weight is
neonate: 3.5 Kg

6 months: 6 Kg

1-5 years: (age in years x 2) + 8 Kg

> 5 years: (age in years x 3) + 7 Kg.

To convert lbs to Kg, divide lbs by 2.2.

Volumes are rounded up to the nearest 0.1 mL.

Where calculations exceed the adult dose the adult dose applies.

If other concentrations of the medication are used these specific calculations do not apply, and the Practitioner is required to make the calculations by other means.

Formula for medication calculation

$$\frac{\text{Dose Required (mg)}}{\text{Dose in Container (mg)}} \times \text{Vol of Solution (mL)} = \text{Vol to Administer (mL)}$$

Simple Version

$$\frac{\text{Want (mg)}}{\text{Have (mg)}} \times \text{Vol (mL)} = \text{Vol to Administer (mL)}$$

Medication in Pregnancy Use by Practitioners

Each medication is designated using a traffic light system; Red (Absolute contraindication), Amber (Consider with caution) or Green (No clinical issue identified). Please note that some medications may have a qualified descriptor such as 'labour', which will have a suggested action outlined.

Adenosine

Indications:

Paroxysmal supraventricular tachycardia (>150) with signs of poor perfusion.

Adult dose:

6 mg IV. Initial Adenosine unsuccessful: Repeat at 12 mg x 2 prn Max.

Paediatric dose:

Not indicated.

Contraindications:

Asthma / COPD / Decompensated heart failure / Long QT syndrome / Second or third degree AV block / Severe hypotension / Sick sinus syndrome (unless pacemaker fitted)/ KSAR.

Side effects:

Angina (discontinue)

Apprehension - arrhythmia (discontinue if asystole or severe bradycardia occur)
AV block / Dizziness / Dyspnoea / Flushing / Headache / Nausea / Sinus pause.

Uncommon:

Blurred vision / Hyperventilation / Metallic taste / Palpitation / Sweating / Weakness.

Additional information:

Initially 6 mg, administered into large peripheral vein and given over 2 seconds, followed by rapid 10 mL NaCl 0.9% flush.

Repeat doses of 12 mg administered rapidly also.

Cardiac monitoring required.

Cautions:

Atrial fibrillation with accessory pathway / Atrial flutter with accessory pathway Autonomic dysfunction / Bundle branch block / First-degree AV block / Heart transplant / Recent MI / Severe heart failure / Stenotic valvular heart disease / Uncorrected hypovolaemia.

Pregnancy:

May administer

Amiodarone

Indications:

Ventricular fibrillation (VF) Pulseless, ventricular tachycardia (pVT) and Symptomatic Tachycardia (>150).

Adult dose:

VF/pVT: 5 mg/Kg IV/IO (loading dose for adult cardiac arrest: 300 mg and one supplemental dose of 150 mg).

Symptomatic tachycardia: 150 mg - IV infusion in 100 mL D₅W (over 10 minutes).

Paediatric dose:

VF/pVT: 5 mg/Kg IV/IO, if refractory VF/pVT post Epinephrine and 3rd shock.

Contraindications:

Known hypersensitivity to Iodine, KSAR.

Side effects:

Inflammation of peripheral veins / Bradycardia / AV conducting abnormalities.
Hypotension (usually moderate / transient) but can be severe after rapid injection.

Additional information:

If diluted mix with Dextrose 5% (for infusion use 100 mL D₅W). May be flushed with NaCl. For cardiac arrest do not dilute, administer directly followed by a flush. For ease of use in paediatric calculations when using 150 mg in 3 mL, add 2 mL D₅W, making the concentration 150 mg in 5 mL.

Pregnancy:

May administer in cardiac arrest
Caution in stable VT – consider risk/benefit

Amiodarone calculations

Paediatric dose:

5 mg/Kg

Concentration:

150 mg/5 mL or 300 mg/10 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	17.5 mg	0.6 mL
6 months	6 Kg	30 mg	1 mL
1 year	10 Kg	50 mg	1.7 mL
2 years	12 Kg	60 mg	2 mL
3 years	14 Kg	70 mg	2.3 mL
4 years	16 Kg	80 mg	2.7 mL
5 years	18 Kg	90 mg	3 mL
6 years	25 Kg	125 mg	4.2 mL
7 years	28 Kg	140 mg	4.7 mL
8 years	31 Kg	155 mg	5.2 mL
9 years	34 Kg	170 mg	5.7 mL
10 years	37 Kg	185 mg	6.2 mL
11 years	40 Kg	200 mg	6.7 mL
12 years	43 Kg	215 mg	7.2 mL
13 years	46 Kg	230 mg	7.7 mL
14 years	49 Kg	245 mg	8.2 mL
15 years	52 Kg	260 mg	8.7 mL

Aspirin

Indications:

Cardiac chest pain or suspected myocardial infarction.

Management of unstable angina and non ST-segment elevation myocardial infarction (NSTEMI).

Adult dose:

300 mg tablet.

Paediatric dose:

Not indicated.

Contraindications:

Active symptomatic gastrointestinal (GI) ulcer / Bleeding disorder (e.g. haemophilia) / Patients < 16 years old (risk of Reye's syndrome) / KSAR.

Side effects:

Epigastric pain and discomfort / Bronchospasm / Gastrointestinal haemorrhage / Increased bleeding time / Skin reactions in hypersensitive patients.

Additional information:

Aspirin 300 mg is indicated for cardiac chest pain regardless if patient is on anti-coagulants or is already on Aspirin.

If the patient has swallowed an Aspirin (enteric coated) preparation without chewing it, the patient should be regarded as not having taken any Aspirin; administer 300 mg PO.

Pregnancy:

Do not administer if chest pain and normal ECG
For STEMI discuss with receiving cardiologist

Atropine

Indications:

Adult: Symptomatic bradycardia.

Cholinergic poison (from Organophosphorus insecticides) with bradycardia and salivation.

Adult dose:

Cholinergic poison with bradycardia and salivation:

1 mg IV. (Repeat at 3-5 min intervals to ensure minimal salivary secretions).

Symptomatic Bradycardia:

0.6 mg (600 mcg) IV. (Repeat at 3-5 min intervals to Max 3 mg).

Paediatric dose:

Not indicated.

Contraindications:

Post-cardiac transplantation/ KSAR.

Side effects:

Tachycardia / Dry mouth / Dilated pupils.

Additional information:

Accidental exposure to the eye causes blurred vision.

Do not administer Atropine if temperature < 34.1°C.

Pregnancy:

May administer

Ceftriaxone

Indications:

Severe sepsis – Adult and Paediatric.

Adult dose:

2 g IV/IO/IM.

IV/IO over 2-4 minutes or deep IM injection.

Paediatric dose:

1 Month – 11 years: 50 mg/Kg IV/IO/IM.

> 11 years or body weight > 50 Kg: 2 g IV/IO/IM.

IV/IO over 2-4 minutes or deep IM injection.

Contraindications:

Age < 1 month

Hx of severe hypersensitivity (e.g. anaphylactic reaction) to any beta-lactam antibacterial (Penicillins, Cephalosporins, Aztreonam, Meropenem, Ertapenem).

KSAR

Ceftriaxone solutions containing Lidocaine should never be administered IV

Side effects:

Diarrhoea / Rash / Headache / Dizziness / Nausea / Vomiting / Pruritus.

Additional information:

Ceftriaxone **must not** be mixed or administered simultaneously with any calcium-containing intravenous solutions.

Preferred route is by IV or IO infusion (in that order). Reconstitute 1 g in 2 mL and add 8 mL water for injection (1 g in 10 mL).

Intramuscular route may be used only in exceptional circumstances. Up to 1 g (3.5 mL) divide into more than one injection site. IM injection should be mixed as 1 g and 3.5 mL of 1% Lidocaine Hydrochloride injection to reduce pain at the IM injection site. The resulting solution must never be administered intravenously.

Pregnancy:

May administer

Ceftriaxone IV

Paediatric dose:

50 mg/Kg (1 month – 11 years) and 2 g (> 11 years or > 50 Kg)

Concentration:

1000 mg/10 mL (reconstitute 1 g vial in 2 mL and add 8 mL water for injection)

Age	Weight	Dose	mL
Neonate	3.5 Kg	Contraindicated	
6 months	6 Kg	300 mg	3 mL
1 year	10 Kg	500 mg	5 mL
2 years	12 Kg	600 mg	6 mL
3 years	14 Kg	700 mg	7 mL
4 years	16 Kg	800 mg	8 mL
5 years	18 Kg	900 mg	9 mL
6 years	25 Kg	1.25 g	12.5 mL
7 years	28 Kg	1.4 g	14 mL
8 years	31 Kg	1.55 g	15.5 mL
9 years	34 Kg	1.7 g	17 mL
10 years	37 Kg	1.85 g	18.5 mL
11 years	40 Kg	2 g	20 mL
12 years	43 Kg	2 g	20 mL
13 years	46 Kg	2 g	20 mL
14 years	49 Kg	2 g	20 mL
15 years	52 Kg	2 g	20 mL

Ceftriaxone IM

Ceftriaxone solutions containing Lidocaine should never be administered IV

Paediatric dose:

50 mg/Kg (1 month – 11 years) and 2 g (> 11 years or > 50 Kg)

Concentration:

1000 mg/3.5 mL (**1 g vial reconstituted with 3.5 mL of 1% Lidocaine Hydrochloride**)

Age	Weight	Dose	mL
Neonate	3.5 Kg	Contraindicated	
6 months	6 Kg	300 mg	1.1 mL
1 year	10 Kg	500 mg	1.8 mL
2 years	12 Kg	600 mg	2.1 mL
3 years	14 Kg	700 mg	2.5 mL
4 years	16 Kg	800 mg	2.8 mL
5 years	18 Kg	900 mg	3.2 mL
6 years	25 Kg	1.25 g	4.4 mL
7 years	28 Kg	1.4 g	4.9 mL
8 years	31 Kg	1.55 g	5.4 mL
9 years	34 Kg	1.7 g	6 mL
10 years	37 Kg	1.85 g	6.5 mL
11 years	40 Kg	2 g	7 mL
12 years	43 Kg	2 g	7 mL
13 years	46 Kg	2 g	7 mL
14 years	49 Kg	2 g	7 mL
15 years	52 Kg	2 g	7 mL

Chlorphenamine

Indications:

Anaphylaxis or allergic reaction.

Adult dose:

Allergic reaction:

Mild: - 4 mg PO (EMT / P / AP).

Moderate: - 4 mg PO or 10 mg IM (EMT / P) or 10 mg IV (AP).

Severe/Anaphylaxis: - 10 mg IM (EMT / P) or 10 mg IV (AP).

Paediatric dose:

Allergic reaction:

Mild: 6 to 11 years – 2 mg PO (EMT / P / AP).

≥ 12 years – 4 mg PO (EMT / P / AP).

Moderate: < 1 year – 0.25 mg/Kg IM (EMT / P) or 0.25 mg/Kg IV (AP).

1 to 5 years – 2.5 mg IM (EMT / P) or 2.5 mg IV (AP).

6 to 11 years – 2 mg PO or 5 mg IM (EMT / P) or 5 mg IV (AP).

≥ 12 years – 4 mg PO or 10 mg IM (EMT / P) or 10 mg IV (AP).

Severe/ Anaphylaxis:

< 1 year – 0.25 mg/Kg IM (EMT / P) or 0.25 mg/Kg IV (AP).

1 to 5 years – 2.5 mg IM (EMT / P) or 2.5 mg IV (AP).

6 to 11 years – 5 mg IM (EMT / P) or 5 mg IV (AP).

≥ 12 years – 10 mg IM (EMT / P) or 10 mg IV (AP).

Contraindications:

Pre-coma states / KSAR.

Side effects:

Causes drowsiness and patients receiving it should not drive or operate machinery.

Additional information:

Use with caution in epilepsy / Prostatic hypertrophy / Glaucoma / Hepatic disease / Bronchitis / Bronchiectasis / Thyrotoxicosis / Raised intra-ocular pressure / Severe hypertension / Cardiovascular disease / Bronchial asthma.

For IV route, administer over 1 minute.

If small dose required, dilute with NaCl 0.9%.

Pregnancy:

Do not administer

Chlorphenamine IV/ IM

Paediatric dose:

0.25 mg/Kg (< 1 year), 2.5 mg (1-5 years), 5 mg (6-11 years), 10 mg ($\geq$ 12 years)

Concentration:

10 mg/ 1 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	875 mcg	0.1 mL
6 months	6 Kg	1.5 mg	0.2 mL
1 year	10 Kg	2.5 mg	0.3 mL
2 years	12 Kg	2.5 mg	0.3 mL
3 years	14 Kg	2.5 mg	0.3 mL
4 years	16 Kg	2.5 mg	0.3 mL
5 years	18 Kg	2.5 mg	0.3 mL
6 years	25 Kg	5 mg	0.5 mL
7 years	28 Kg	5 mg	0.5 mL
8 years	31 Kg	5 mg	0.5 mL
9 years	34 Kg	5 mg	0.5 mL
10 years	37 Kg	5 mg	0.5 mL
11 years	40 Kg	5 mg	0.5 mL
12 years	43 Kg	10 mg	1 mL
13 years	46 Kg	10 mg	1 mL
14 years	49 Kg	10 mg	1 mL
15 years	52 Kg	10 mg	1 mL

Clopidogrel

Indications:

ST elevation myocardial infarction (STEMI) if the patient is not suitable for PPCI.

Adult dose:

300 mg PO.

≥ 75 years: 75 mg PO.

Paediatric dose:

Not indicated.

Contraindications:

Active pathological bleeding / Severe liver impairment / KSAR.

Side effects:

Abdominal pain / Dyspepsia / Diarrhoea.

Additional information:

If a patient has been loaded with an anti-platelet medication (other than Aspirin), prior to the arrival of the practitioner, the patient should not have Clopidogrel administered.

Pregnancy:

Do not administer

Cyclizine

Indications:

Management, prevention and treatment of nausea and vomiting.

Adult dose:

50 mg slow IV/IO or IM.

Palliative Care:

50 mg SC/PO. (Repeat x 1 prn - AP).

Paediatric dose:

Not indicated.

Contraindications:

KSAR.

Side effects:

Tachycardia / Dry Mouth / Sedation.

Additional information:

IM route should only be utilised where IV or IO access is not available.

Pregnancy:

May administer

Dextrose 10% Solution

Indications:

Hypoglycaemic Emergency. Blood glucose level < 4 mmol/L.

Adult dose:

250 mL IV/IO infusion (repeat x 1 prn).

Paediatric dose:

5 mL/Kg IV/IO (repeat x 1 prn).

Contraindications:

KSAR.

Side effects:

Necrosis of tissue around IV access.

Additional information:

Also called Glucose.

Cannula patency will reduce the effect of tissue necrosis.

Advanced paramedics should use as large a vein as possible.

Paramedics are authorised to continue the established infusion in the absence of an advanced paramedic or doctor during transportation.

Pregnancy:

May administer

Dextrose 10% calculations

Paediatric dose:

500 mg/Kg (5 mL/Kg)

Concentration:

50 g/500 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	1.75 g	17.5 mL
6 months	6 Kg	3 g	30 mL
1 year	10 Kg	5 g	50 mL
2 years	12 Kg	6 g	60 mL
3 years	14 Kg	7 g	70 mL
4 years	16 Kg	8 g	80 mL
5 years	18 Kg	9 g	90 mL
6 years	25 Kg	12.5 g	125 mL
7 years	28 Kg	14 g	140 mL
8 years	31 Kg	15.5 g	155 mL
9 years	34 Kg	17 g	170 mL
10 years	37 Kg	18.5 g	185 mL
11 years	40 Kg	20 g	200 mL
12 years	43 Kg	21.5 g	215 mL
13 years	46 Kg	23 g	230 mL
14 years	49 Kg	24.5 g	245 mL
15 years	52 Kg	25 g	250 mL

Dextrose 5% solution

Indications:

Use as a dilutant for Amiodarone infusion.

Adult dose:

Dilute appropriate dose of Amiodarone in 100 mL or 500 mL.

Paediatric dose:

Not indicated.

Contraindications:

KSAR.

Side effects:

Necrosis of tissue around IV access.

Additional Information:

Paramedics are authorised to continue the established infusion in the absence of an Advanced Paramedic or doctor during transportation.

Pregnancy:

May administer

Diazepam Rectal Solution

Indications:

Seizure.

Adult dose:

10 mg (PR). Maximum 4 doses of Benzodiazepine for adult and paediatric patients regardless of route.

Paediatric dose:

< 3 years: 2.5 mg (PR).

3 to 7 years: 5 mg (PR).

≥ 8 years: 10 mg (PR).

Maximum 4 doses of Benzodiazepine for adult and paediatric patients regardless of route.

Contraindications:

Respiratory depression / Shock / Depressed vital signs or alcohol related altered level of consciousness / KSAR.

Side effects:

Hypotension / Respiratory depression / Drowsiness and light-headedness (the next day).

Additional information:

Be aware of modesty of patient.

Should be administered in the presence of a 2nd person.

Egg and soya proteins are used in the manufacture of Diazepam Rectal Solution; allergies to these proteins may be encountered.

The maximum dose of Diazepam includes that administered by carer prior to arrival of practitioner.

If a patient recommences seizing regard it as a new event, administer one dose of Benzodiazepine then consult medical advice.

Pregnancy:

May administer if no other anti-seizure medication available

Diazepam IV

Indications:

Seizure.

Adult dose:

5 mg IV/IO. Maximum 4 doses of Benzodiazepine for adult and paediatric patients regardless of route.

Paediatric dose:

0.1 mg/Kg IV/IO.

Maximum 4 doses of Benzodiazepine for adult and paediatric patients regardless of route.

Contraindications:

Respiratory depression / Shock / Depressed vital signs or alcohol-related altered level of consciousness / KSAR.

Side effects:

Hypotension / Respiratory depression / Drowsiness and light-headedness (the next day).

Additional information:

Diazepam IV should be titrated to effect.

Can cause injection site reactions/thrombophlebitis, ensure large vein is used. Administer slowly (5 mg/1 mL over 1 minute).

The maximum dose of Diazepam includes that administered by carer prior to arrival of practitioner.

If a patient recommences seizing regard it as a new event, administer one dose of Benzodiazepine then consult medical advice.

Pregnancy:

May administer if no other anti-seizure medication available

Diazepam IV calculations

Paediatric dose:

0.1 mg/Kg

Concentration:

10 mg/2 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	350 mcg	0.1 ml
6 months	6 Kg	600 mcg	0.1 mL
1 year	10 Kg	1 mg	0.2 mL
2 years	12 Kg	1.2 mg	0.2 mL
3 years	14 Kg	1.4 mg	0.3 mL
4 years	16 Kg	1.6 mg	0.3 mL
5 years	18 Kg	1.8 mg	0.4 mL
6 years	25 Kg	2.5 mg	0.5 mL
7 years	28 Kg	2.8 mg	0.6 mL
8 years	31 Kg	3.1 mg	0.6 mL
9 years	34 Kg	3.4 mg	0.7 mL
10 years	37 Kg	3.7 mg	0.7 mL
11 years	40 Kg	4 mg	0.8 mL
12 years	43 Kg	4.3 mg	0.9 mL
13 years	46 Kg	4.6 mg	0.9 mL
14 years	49 Kg	4.9 mg	1 mL
15 years	52 Kg	5 mg	1 mL

Enoxaparin Sodium Solution

Indications:

Acute ST-segment Elevation Myocardial Infarction (STEMI) immediately following the administration of a thrombolytic agent.

Adult dose:

30 mg IV bolus (>75 years: 0.75 mg/Kg SC).

Paediatric dose:

Not indicated.

Contraindications:

Active major bleeding disorders and conditions with a high risk of uncontrolled haemorrhage, including recent haemorrhagic stroke or subdural haematoma; in jaundice; active gastric or duodenal ulceration; hiatal ulceration; threatened abortion, or retinopathy, hypersensitivity to Enoxaparin or other Low Molecular Weight Heparins, KSAR.

Patients on oral anticoagulant as (Warfarin or new oral anticoagulant NOAC) thrombolytic contra-indicated.

Side effects:

Pain, haematoma and mild local irritation may follow the subcutaneous injection (do not rub injection site).

Additional Information:

Do not store above 25 degrees Celsius.

Do not refrigerate or freeze.

Medical Practitioners: Due to the significant increased risk of intra-cerebral bleed for patients aged >75 years DO NOT administer IV Enoxaparin. Enoxaparin 0.75 mg/Kg SC (Max 75 mg SC) is the recommended dose and route.

Pregnancy:

May administer.

Epinephrine (1:1,000)

Indications:

Severe anaphylaxis, Stridor, Symptomatic Bradycardia and Cardiogenic shock.

Adult dose:

Anaphylaxis:

0.5 mg (500 mcg) IM (0.5 mL of 1:1,000).

Symptomatic Bradycardia/Cardiogenic shock (AP):

0.01 mg IV/IO repeat prn. (Dilute 1 mg Epinephrine in 100 mL NaCl and draw up in 1 mL syringe, administer the dose over 1 minute).

Paediatric dose:

Anaphylaxis:

< 6 months: - 0.05 mg (50 mcg) IM (0.05 mL of 1:1,000).

6 months to 5 years: - 0.125 mg (125 mcg) IM (0.13 mL of 1:1,000).

6 to 8 years: - 0.25 mg (250 mcg) IM (0.25 mL of 1:1,000).

> 8 years: - 0.5 mg (500 mcg) IM (0.5 mL of 1:1,000).

Stridor (AP):

< 1 Year: 2.5 mg NEB.

≥ 1 year: 5 mg NEB (repeat after 30 minutes prn).

Contraindications:

None known.

Side effects:

Palpitations / Tachyarrhythmias / Hypertension / Angina-like symptoms.

Additional information:

N.B. Double check the concentration on pack before use.

Pregnancy:

May administer

Epinephrine (1:10,000)

Indications:

Cardiac arrest.

Paediatric bradycardia unresponsive to other measures.

Adult dose:

Cardiac arrest: 1 mg IV/IO (repeat 3-5 min prn).

Paediatric dose:

Cardiac arrest: 0.01 mg/Kg (0.1 mL/Kg) IV/IO (repeat 3-5 min prn).

Bradycardia: 0.01 mg/Kg (0.1 mL/Kg) IV/IO (repeat every 3-5 mins prn).

Contraindications:

KSAR.

Side effects:

In non-cardiac arrest patients: palpitations, tachyarrhythmias, hypertension.

Additional information:

N.B. Double check concentrations on pack before use.

Pregnancy:

May administer

Epinephrine (1:10,000) calculations

Paediatric dose:

0.01 mg/Kg

Concentration:

1 mg/ 10 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	35 mcg	0.4 mL
6 months	6 Kg	60 mcg	0.6 mL
1 year	10 Kg	100 mcg	1 mL
2 years	12 Kg	120 mcg	1.2 mL
3 years	14 Kg	140 mcg	1.4 mL
4 years	16 Kg	160 mcg	1.6 mL
5 years	18 Kg	180 mcg	1.8 mL
6 years	25 Kg	250 mcg	2.5 mL
7 years	28 Kg	280 mcg	2.8 mL
8 years	31 Kg	310 mcg	3.1 mL
9 years	34 Kg	340 mcg	3.4 mL
10 years	37 Kg	370 mcg	3.7 mL
11 years	40 Kg	400 mcg	4 mL
12 years	43 Kg	430 mcg	4.3 mL
13 years	46 Kg	460 mcg	4.6 mL
14 years	49 Kg	490 mcg	4.9 mL
15 years	52 Kg	520 mcg	5.2 mL

Fentanyl

Indications:

Acute severe pain.

Adult dose:

0.1 mg (100 mcg) IN (Repeat by one at not < 10 minutes if severe pain persists).

0.05 mg (50 mcg) IV.

Paediatric dose:

0.0015 mg/Kg (1.5 mcg/Kg) IN. (Repeat by one at not < 10 minutes if severe pain persists).

Contraindications:

< 1-year-old / Known Fentanyl hypersensitivity / ALoC / Bilateral occluded nasal passage / Nasal trauma / Epistaxis / Hypovolaemia.

Side effects:

Sedation / Nausea/Vomiting / Respiratory depression.

Additional information:

Caution if patient has transdermal Fentanyl patch

Include an additional 0.1 mL, to allow for dead space in the mucosal atomisation device (MAD), in the calculated volume required.

Administer 50% volume in each nostril if more than 1 mL.

Following Fentanyl IN, the next dose may be either Fentanyl or Morphine IV, but not both.

(Adults) In the absence of acquiring IV access, a second dose of IN Fentanyl may be administered.

Controlled under Schedule 2 of the Misuse of Drugs Regulations 1988 (S.I. No. 328 of 1988).

Pregnancy:

May administer but NOT if labour has commenced

Fentanyl IN calculations (inclusive of 0.1 mL for MAD)

Paediatric dose:

0.0015 mg/Kg

Concentration:

0.1 mg/ 2 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	Contraindicated	
6 months	6 Kg	Contraindicated	
1 year	10 Kg	15 mcg	0.4 mL
2 years	12 Kg	18 mcg	0.5 mL
3 years	14 Kg	21 mcg	0.5 mL
4 years	16 Kg	24 mcg	0.6 mL
5 years	18 Kg	27 mcg	0.6 mL
6 years	25 Kg	38 mcg	0.9 mL
7 years	28 Kg	42 mcg	0.9 mL
8 years	31 Kg	47 mcg	1 mL
9 years	34 Kg	51 mcg	1.1 mL
10 years	37 Kg	56 mcg	1.2 mL
11 years	40 Kg	60 mcg	1.3 mL
12 years	43 Kg	65 mcg	1.4 mL
13 years	46 Kg	69 mcg	1.5 mL
14 years	49 Kg	74 mcg	1.6 mL
15 years	52 Kg	78 mcg	1.7 mL

Furosemide injection

Indications:

Pulmonary oedema.

Adult dose:

40 mg slow IV.

Paediatric dose:

Not indicated.

Contraindications:

Pregnancy / Known Hypokalaemia / KSAR.

Side effects:

Headache / Dizziness / Hypotension / Arrhythmias / Transient deafness / Diarrhoea / Nausea and Vomiting.

Additional information:

Furosemide should be protected from light. SPC recommends administration at 4 mg/min IV.

Pregnancy:

Do not administer

Glucagon

Indications:

Hypoglycaemia in patients unable to take oral glucose or unable to gain IV access, with a blood glucose level < 4 mmol/L.

Adult dose:

1 mg IM.

Paediatric dose:

1- 8 years - 0.5 mg (500 mcg) IM.

> 8 years - 1 mg IM.

Contraindications:

< 1 year / Pheochromocytoma / KSAR.

Side effects:

Rare: may cause Hypotension / Dizziness / Headache / Nausea and Vomiting.

Additional information:

May be ineffective in patients with low stored glycogen e.g. prior use in previous 24 hours, alcohol dependent patients with liver disease.

Store in refrigerator.

Protect from light.

Hypoglycaemic paediatric patients who are not diagnosed as diabetic should not be administered Glucagon (this does not preclude the administration of Glucose gel or Dextrose to treat hypoglycaemia).

Pregnancy:

May administer

Glucose Gel

Indications:

Hypoglycaemia, blood glucose < 4 mmol/L.

Adult dose:

10-20 g buccal.

Repeat prn.

Paediatric dose:

≤ 8 years: 5-10 g buccal.

> 8 years: 10-20 g buccal.

Repeat prn.

Contraindications:

KSAR.

Side effects:

May cause vomiting in patients under 5 if administered too quickly.

Additional information:

Glucose gel will maintain glucose levels once raised but should be used secondary to dextrose to reverse hypoglycaemia.

Proceed with caution:

Patients with airway compromise. Altered level of consciousness.

Pregnancy:

May administer

Glyceryl Trinitrate (GTN)

Indications:

Angina / suspected myocardial infarction (MI).

EMT: Angina / suspected myocardial infarction (MI) with systolic BP ≥ 110 mmHg.

Advanced Paramedic and Paramedic: Pulmonary oedema.

Adult dose:

Angina or MI:

0.4 mg (400 mcg) sublingual. (Repeat at 3-5 min intervals, Max: 1.2 mg).

Pulmonary oedema (P & AP):

0.8 mg (800 mcg) sublingual (repeat x 1 prn).

Paediatric dose:

Not indicated.

Contraindications:

SBP < 90 mmHg / Viagra or other phosphodiesterase type 5 inhibitors (Sildenafil, Tadalafil and Vardenafil) used within previous 24 hours / Severe mitral stenosis / KSAR.

Side effects:

Headache / Transient Hypotension / Flushing / Dizziness.

Additional information:

Caution with inferior wall MI with right ventricular involvement as this may lead to profound hypotension.

If the pump is new or it has not been used for a week or more the first spray should be released into the air.

Pregnancy:

May administer

Glycopyrronium Bromide

Indications:

Palliative care with excessive oropharyngeal secretions.

Adult dose:

0.4 mg (400 mcg) SC.

Paediatric dose:

Not applicable.

Contraindications:

KSAR.

Side effects:

Transient bradycardia / Pupil dilation / Photophobia / Flushing.

Additional information:

For patients receiving palliative care administer their doctor's prescribed dose if known.

Pregnancy:

May administer

Haloperidol

Indications:

Palliative care with nausea and vomiting or agitation/delirium.

Adult dose:

1 – 2 mg SC/PO.

Paediatric dose:

Not applicable.

Contraindications:

KSAR.

Side effects:

Insomnia / Agitation / Hyperkinesia / Headache.

Additional information:

For agitation/delirium, consider Midazolam in addition only if severe agitation.

For patients receiving palliative care administer their doctor's prescribed dose if known.

Pregnancy:

May administer

Hartmann's Solution

Indications:

When NaCl is unavailable it may be substituted with Hartmann's Solution IV/IO, except for crush injuries, burns, renal failure and hyperglycaemia.

Adult dose:

See NaCl.

Paediatric dose:

See NaCl.

Contraindications:

KSAR.

Do not use with Ceftriaxone.

Side effects:

If administered in large amounts may cause oedema.

Additional information:

Observe caution with patients with history of heart failure.

Also called: Sodium Lactate Intravenous Solution or Compound Ringer Lactate Solution for injection.

Warm fluids prior to administration if possible.

Pregnancy:

May administer

Hydrocortisone

Indications:

Severe or recurrent anaphylactic reactions.
Asthma refractory to Salbutamol and Ipratropium Bromide.
Exacerbation of COPD (AP). Adrenal insufficiency (P).

Adult dose:

Anaphylactic reaction:
200 mg IV (infusion in 100 mL NaCl) (AP) or IM injection (P/AP).
Exacerbation of COPD (AP): 200 mg IV (infusion in 100 mL NaCl) or IM.
Asthma (AP): 100 mg slow IV (infusion in 100 mL NaCl).
Adrenal insufficiency: 100 mg IV (infusion in 100 mL NaCl) (AP) or IM (P/AP).

Paediatric dose:

Anaphylactic reaction:
< 1 year: 25 mg IV (infusion in 100 mL NaCl) (AP) or IM (P/AP).
1 to 5 years: 50 mg IV (infusion in 100 mL NaCl) (AP) or IM (P/AP).
> 5 years: 100 mg IV (infusion in 100 mL NaCl) (AP) or IM (P/AP).
Asthma (AP):
< 1 year: 25 mg IV / 1 to 5 years: 50 mg IV / > 5 years: 100 mg IV - (infusion in 100 mL NaCl).
Adrenal insufficiency:
6 months to ≤ 5 years: 50 mg IV (infusion in 100 mL NaCl) (AP) or IM injection (P/AP).
> 5 years: 100 mg IV (infusion in 100 mL NaCl) (AP) or IM injection (P/AP).

Contraindications:

No major contraindications in acute management of anaphylaxis.

Side effects:

CCF / Hypertension / Abdominal distension / Vertigo / Headache / Nausea / Malaise and hiccups.

Additional information:

Intramuscular injection should avoid the deltoid area because of the possibility of tissue atrophy.

Dose should not be less than 25 mg.

IV is the preferred route for adrenal crisis.

If the patient, in an adrenal crisis, is still unwell following Hydrocortisone administration prior to arrival of the practitioner the standard dose of Hydrocortisone should be administered.

Pregnancy:

May administer

Hyoscine Butylbromide

Indications:

Palliative care with excessive oropharyngeal secretions.

Adult dose:

10 – 20 mg SC.

Paediatric dose:

Not applicable.

Contraindications:

KSAR.

Side effects:

Transient bradycardia / Pupil dilation / Photophobia / Flushing.

Additional information:

For patients receiving palliative care administer their doctor's prescribed dose if known.

Pregnancy:

May administer

Ibuprofen

Indications:

Mild to moderate pain.

Adult dose:

400 mg PO (Mild pain).

600 mg PO (Moderate pain).

Paediatric dose:

10 mg/Kg PO to a Max of 400 mg.

Contraindications:

Not suitable for children under 3 months, patient with history of asthma exacerbated by Aspirin, pregnancy, peptic ulcer disease / Known renal failure / Known severe liver failure / Known severe heart failure / Concurrent NSAID use (e.g. Diclofenac, Naproxen) / KSAR.

Side effects:

Skin rashes, gastrointestinal intolerance and bleeding.

Additional information:

If Ibuprofen administered in previous 6 hours, adjust the dose downward by the amount given by other sources resulting in a maximum of 10 mg/Kg or 400 mg for paediatrics.

Caution with significant burns or poor perfusion due to risk of kidney failure.

Caution if on oral anticoagulant (e.g. Warfarin, Rivaroxaban, Apixaban, Edoxaban) due to increased bleeding risk.

Ibuprofen may be combined with Paracetamol for synergic effect.

Pregnancy:

Do not administer

Ibuprofen (Brufen Syrup) calculations

Paediatric dose:

10 mg/Kg

Concentration:

100 mg/5 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	Contraindicated	
6 months	6 Kg	60 mg	3 mL
1 year	10 Kg	100 mg	5 mL
2 years	12 Kg	120 mg	6 mL
3 years	14 Kg	140 mg	7 mL
4 years	16 Kg	160 mg	8 mL
5 years	18 Kg	180 mg	9 mL
6 years	25 Kg	250 mg	12.5 mL
7 years	28 Kg	280 mg	14 mL
8 years	31 Kg	310 mg	15.5 mL
9 years	34 Kg	340 mg	17 mL
10 years	37 Kg	370 mg	18.5 mL
11 years	40 Kg	400 mg	20 mL
12 years	43 Kg	400 mg	20 mL
13 years	46 Kg	400 mg	20 mL
14 years	49 Kg	400 mg	20 mL
15 years	52 Kg	400 mg	20 mL

Ibuprofen 6+ (Brufen Syrup) calculations

Paediatric dose:

10 mg/Kg

Concentration:

200 mg/ 5 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	Contraindicated	
6 months	6 Kg	60 mg	1.5 mL
1 year	10 Kg	100 mg	2.5 mL
2 years	12 Kg	120 mg	3 mL
3 years	14 Kg	140 mg	3.5 mL
4 years	16 Kg	160 mg	4 mL
5 years	18 Kg	180 mg	4.5 mL
6 years	25 Kg	250 mg	6.3 mL
7 years	28 Kg	280 mg	7 mL
8 years	31 Kg	310 mg	7.8 mL
9 years	34 Kg	340 mg	8.5 mL
10 years	37 Kg	370 mg	9.3 mL
11 years	40 Kg	400 mg	10 mL
12 years	43 Kg	400 mg	10 mL
13 years	46 Kg	400 mg	10 mL
14 years	49 Kg	400 mg	10 mL
15 years	52 Kg	400 mg	10 mL

Ipratropium Bromide

Indications:

Acute moderate asthma or exacerbation of COPD not responding to initial Salbutamol dose.

Adult dose:

0.5 mg (500 mcg) NEB.

Paediatric dose:

< 12 years: 0.25 mg (250 mcg) NEB.

≥ 12 years: 0.5 mg (500 mcg) NEB.

Contraindications:

KSAR.

Side effects:

Transient dry mouth / Blurred vision / Tachycardia / Headache.

Pregnancy:

May administer

Ketamine

Indications:

Severe pain.

Adult dose:

0.1 mg/Kg IV (repeat once only at not < 10 minutes prn).

Paediatric dose:

0.1 mg/Kg IV (repeat once only at not < 10 minutes prn).

Contraindications:

Acute porphyrias / Pre-eclampsia / Eclampsia / Head trauma / Hypertension / Raised intracranial pressure / Severe cardiac disease / Stroke.

Side effects:

Diplopia / Hallucinations / Hypertension / Nausea and Vomiting / Tachycardia / Transient psychotic effects.

Additional information:

Incidents of hallucinations, nightmares, and other psychotic effects can be reduced by a Benzodiazepine such as Diazepam or Midazolam.

Reduces Morphine requirements.

Has low frequency of serious side effects in doses used for analgesia. Allows patients to maintain their pharyngeal reflexes and maintain their own airway.

Controlled under Schedule 3 to the Misuse of Drugs Regulations 1988 (S.I. No. 328 of 1988).

Pregnancy:

May administer but NOT if labour has commenced

Ketamine IV calculations

Adult doses:

0.1 mg/Kg (200 mg in 20 mL (draw up 1 mL and dilute in 9 mL of NaCl))

Concentration:

10 mg/ 10 mL

Weight	mg	mL
40 Kg	4 mg	4 mL
45 Kg	4.5 mg	4.5 mL
50 Kg	5 mg	5 mL
55 Kg	5.5 mg	5.5 mL
60 Kg	6 mg	6 mL
65 Kg	6.5 mg	6.5 mL
70 Kg	7 mg	7 mL
75 Kg	7.5 mg	7.5 mL
80 Kg	8 mg	8 mL
85 Kg	8.5 mg	8.5 mL
90 Kg	9 mg	9 mL
95 Kg	9.5 mg	9.5 mL
100 Kg	10 mg	10 mL
105 Kg	10.5 mg	10.5 mL
110 Kg	11 mg	11 mL
115 Kg	11.5 mg	11.5 mL
120 Kg	12 mg	12 mL

Ketamine IV calculations

Paediatric dose:

0.1 mg/Kg (200 mg in 20 mL (draw up 1 mL and dilute in 9 mL of NaCl))

Concentration:

10 mg/10 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	350 mcg	0.4 mL
6 months	6 Kg	600 mcg	0.6 mL
1 year	10 Kg	1 mg	1 mL
2 years	12 Kg	1.2 mg	1.2 mL
3 years	14 Kg	1.4 mg	1.4 mL
4 years	16 Kg	1.6 mg	1.6 mL
5 years	18 Kg	1.8 mg	1.8 mL
6 years	25 Kg	2.5 mg	2.5 mL
7 years	28 Kg	2.8 mg	2.8 mL
8 years	31 Kg	3.1 mg	3.1 mL
9 years	34 Kg	3.4 mg	3.4 mL
10 years	37 Kg	3.7 mg	3.7 mL
11 years	40 Kg	4 mg	4 mL
12 years	43 Kg	4.3 mg	4.3 mL
13 years	46 Kg	4.6 mg	4.6 mL
14 years	49 Kg	4.9 mg	4.9 mL
15 years	52 Kg	5.2 mg	5.2 mL

Lidocaine

Indications:

When Amiodarone is unavailable it may be substituted with Lidocaine for VF/pVT arrests - (Special authorisation required).
Solvent for Ceftriaxone IM.

Adult dose:

VF/VT 100 mg IV.
Solvent 3.5 mL.

Paediatric dose:

Solvent 3.5 mL.

Contraindications:

No contraindications for cardiac arrest.

Side effects:

Drowsiness / Dizziness / Twitching / Paraesthesia / Convulsions
/ Bradycardia / Respiratory depression.

Additional information:

Lidocaine may not be administered if Amiodarone has been administered.

Pregnancy:

May administer.

Lorazepam

Indications:

Combative with hallucinations or paranoia and risk to self or others.

Adult dose:

2 mg PO (repeat x 1 prn).

Paediatric dose:

Not indicated.

Contraindications:

History of sensitivity to benzodiazepines, severe hepatic or pulmonary insufficiency, suspected significant alcohol and/or sedatives ingested, KSAR.

Side effects:

Drowsiness, confusion, headache, dizziness, blurred vision and nausea/vomiting.

On rare occasions – hypotension, hypertension.

Additional information:

Must seek medical advice prior to administration.

Pregnancy:

May administer but NOT if labour has commenced

Magnesium Sulphate Injection

Indications:

Life-threatening Asthma / Torsades de pointes / Persistent bronchospasm / Seizure associated with eclampsia.

Adult dose:

Life-threatening Asthma or Persistent bronchospasm:
2 g IV (infusion in 100 mL NaCl) given over 20 minutes.

Tachycardia – Irregular:

Torsades de pointes with a pulse: 2 g IV (infusion in 100 mL NaCl) given over 10 - 15 minutes.

Seizure associated with pre-eclampsia:

4 g IV (infusion in 100 mL NaCl) given over 15 minutes.

Paediatric dose:

Not indicated.

Contraindications:

None in cardiac arrest, KSAR.

Side effects:

Bradycardia can occur during administration; this can be minimised by slowing the rate of infusion.

Arrhythmias / Coma / Confusion / Drowsiness / Flushing of skin / Hypotension / Decreased deep tendon reflexes / Muscle weakness / Nausea / Respiratory depression / Thirst / Vomiting.

Additional information:

5 g in 10 mL is equivalent to 20 mmol/mg.

Pregnancy:

May administer

Methoxyflurane

Indications:

Moderate to severe pain.

Adult dose:

3 mL (INH) (repeat x 1 only prn).

Paediatric dose:

3 mL (INH) (repeat x 1 only prn).

Contraindications:

< 5 years old / Altered LOC due to head injury, drugs or alcohol / Cardiovascular instability / Respiratory depression / Renal failure or impairment/ KSAR.

Side effects:

Amnesia / Anxiety / Depression / Dizziness / Dysarthria / Dysgeusia / Euphoria / Headache / Sensory neuropathy / Somnolence / Hypotension / Coughing / Dry mouth / Nausea / Feeling drunk / Sweating.

Additional information:

Patients with pain due to acute coronary syndrome (ACS) or migraine may not be suitable for Methoxyflurane.

Methoxyflurane crosses the placenta. Consider the risk of central nervous system (CNS) and respiratory depression in an already compromised foetus.

Contains butylated hydroxytoluene (E321) as a stabiliser.

Methoxyflurane has a mildly pungent odour.

If used in a confined space request the patient to inhale and exhale through the inhaler tube while ensuring that the activated Carbon Chamber is attached.

Pregnancy:

May administer but NOT if labour has commenced

Midazolam Solution

Indications:

Seizures / Combative with hallucinations or paranoia and risk to self or others / Sedation (following medical advice).

Adult dose:

Seizure:

10 mg buccal, 5 mg IN or 5 mg IM (P/AP) 2.5 mg IV/IO (AP).

Palliative Care:

2.5 mg SC (AP) Alternatively 2.5 - 5 mg buccal (P/AP) repeat x 1 prn.

Maximum 4 doses of Benzodiazepine for adult seizing patients regardless of route. Repeat dose in no less than 5 minutes.

Behavioural Emergency - Seek medical advice regarding sedation:

5 mg IN/IM - (repeat x 2 prn) (AP).

Paediatric dose:

Seizure:

< 3 months: - 1.25 mg buccal.

3 months to 1 year: - 2.5 mg buccal.

1 year to < 5 years: - 5 mg buccal.

5 years to < 10 years: - 7.5 mg buccal.

≥ 10 years: - 10 mg buccal.

Or 0.2 mg/Kg intranasal (P & AP)

Or 0.1 mg/Kg IV/IO (AP).

Maximum 4 doses of Benzodiazepine for paediatric seizing patients regardless of route. Repeat dose in no less than 5 minutes.

Behavioural Emergency - Seek medical advice regarding sedation:

0.1 mg/Kg IN - (repeat x 2 prn) (AP).

Contraindications:

Shock, depressed vital signs or alcohol-related ALoC, respiratory depression, KSAR.

Side effects:

Respiratory depression, headache, hypotension, drowsiness.

Additional information:

Midazolam IV should be titrated to effect.

Ensure Oxygen and resuscitation equipment are available prior to administration.

Practitioners should take into account the dose administered by carers prior to arrival of practitioner.

Contraindications, other than KSAR, refer to non-seizing patients.

If patient recommences seizing regard it as a new event, administer additional dose then consider medical advice (AP).

Pregnancy:

May administer

Midazolam IN calculations (inclusive of 0.1 mL for MAD)

Paediatric dose:

0.2 mg/Kg Intranasal

Concentration:

10 mg/2 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	700 mcg	0.2 mL
6 months	6 Kg	1.2 mg	0.3 mL
1 year	10 Kg	2 mg	0.5 mL
2 years	12 Kg	2.4 mg	0.6 mL
3 years	14 Kg	2.8 mg	0.7 mL
4 years	16 Kg	3.2 mg	0.7 mL
5 years	18 Kg	3.6 mg	0.8 mL
6 years	25 Kg	5 mg	1.1 mL
7 years	28 Kg	5 mg	1.1 mL
8 years	31 Kg	5 mg	1.1 mL
9 years	34 Kg	5 mg	1.1 mL
10 years	37 Kg	5 mg	1.1 mL
11 years	40 Kg	5 mg	1.1 mL
12 years	43 Kg	5 mg	1.1 mL
13 years	46 Kg	5 mg	1.1 mL
14 years	49 Kg	5 mg	1.1 mL
15 years	52 Kg	5 mg	1.1 mL

Midazolam IV calculations

Paediatric dose:

0.1 mg/Kg IV/IO

Concentration:

10 mg/2 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	350 mcg	0.1 mL
6 months	6 Kg	600 mcg	0.1 mL
1 year	10 Kg	1 mg	0.2 mL
2 years	12 Kg	1.2 mg	0.2 mL
3 years	14 Kg	1.4 mg	0.3 mL
4 years	16 Kg	1.6 mg	0.3 mL
5 years	18 Kg	1.8 mg	0.4 mL
6 years	25 Kg	2.5 mg	0.5 mL
7 years	28 Kg	2.5 mg	0.5 mL
8 years	31 Kg	2.5 mg	0.5 mL
9 years	34 Kg	2.5 mg	0.5 mL
10 years	37 Kg	2.5 mg	0.5 mL
11 years	40 Kg	2.5 mg	0.5 mL
12 years	43 Kg	2.5 mg	0.5 mL
13 years	46 Kg	2.5 mg	0.5 mL
14 years	49 Kg	2.5 mg	0.5 mL
15 years	52 Kg	2.5 mg	0.5 mL

Morphine Sulphate

Indications: Severe pain.

Adult dose:

4 mg IV - initial dose.

Repeat Morphine 2 mg at not < 2 min intervals prn (Max 16 mg).

For musculoskeletal pain Max 20 mg.

Up to 10 mg IM (if no cardiac chest pain and no IV access).

Palliative Care:

2.5 - 5 mg SC (repeat x 1 prn) Alternatively 5 - 10 mg PO (repeat x 1 prn).

Paediatric dose:

0.3 mg/Kg (300 mcg/Kg) PO (Max 10 mg).

0.05 mg/Kg (50 mcg/Kg) IV/IO. Repeat at not < 2 min prn to Max of 0.1 mg/Kg (100 mcg/Kg) IV/IO.

Contraindications:

PO < 1-year-old / Labour pains / Acute respiratory depression / Acute intoxication / Systolic BP < 90 mmHg / KSAR.

Side effects:

Respiratory depression / Drowsiness / Nausea and vomiting / Constipation.

Additional information:

Use with extreme caution particularly with elderly/young.

Caution with acute respiratory distress.

Caution with reduced GCS.

Not recommended for headache.

N.B. Controlled under Schedule 2 of the Misuse of Drugs Regulations 1988 (Sl. no 328).

Pregnancy:

May administer but NOT if labour has commenced

Morphine calculations (dilute in 9 mL NaCl)

Paediatric dose:

0.05 mg/Kg IV/IO

Concentration:

10 mg/10 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	175 mcg	0.2 mL
6 months	6 Kg	300 mcg	0.3 mL
1 year	10 Kg	500 mcg	0.5 mL
2 years	12 Kg	600 mcg	0.6 mL
3 years	14 Kg	700 mcg	0.7 mL
4 years	16 Kg	800 mcg	0.8 mL
5 years	18 Kg	900 mcg	0.9 mL
6 years	25 Kg	1.25 mg	1.3 mL
7 years	28 Kg	1.4 mg	1.4 mL
8 years	31 Kg	1.55 mg	1.6 mL
9 years	34 Kg	1.7 mg	1.7 mL
10 years	37 Kg	1.85 mg	1.9 mL
11 years	40 Kg	2 mg	2 mL
12 years	43 Kg	2 mg	2 mL
13 years	46 Kg	2 mg	2 mL
14 years	49 Kg	2 mg	2 mL
15 years	52 Kg	2 mg	2 mL

Morphine calculations (Oromorph)

Paediatric dose:

0.3 mg/Kg PO

Concentration:

10 mg/5 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	Contraindicated	
6 months	6 Kg	Contraindicated	
1 year	10 Kg	3 mg	1.5 mL
2 years	12 Kg	3.6 mg	1.8 mL
3 years	14 Kg	4.2 mg	2.1 mL
4 years	16 Kg	4.8 mg	2.4 mL
5 years	18 Kg	5.4 mg	2.7 mL
6 years	25 Kg	7.5 mg	3.8 mL
7 years	28 Kg	8.4 mg	4.2 mL
8 years	31 Kg	9.3 mg	4.7 mL
9 years	34 Kg	10 mg	5 mL
10 years	37 Kg	10 mg	5 mL
11 years	40 Kg	10 mg	5 mL
12 years	43 Kg	10 mg	5 mL
13 years	46 Kg	10 mg	5 mL
14 years	49 Kg	10 mg	5 mL
15 years	52 Kg	10 mg	5 mL

Naloxone

Indications:

Inadequate respiration and/or ALoC following known or suspected narcotic overdose.

Adult dose:

0.4 mg (400 mcg) IV/IO (AP) or 0.4 mg (400 mcg) IM/SC (P) (repeat after 3 min prn to a Max dose of 2 mg).

0.8 mg (800 mcg) IN (EMT) (repeat x 1 after 3 min prn).

Paediatric dose:

0.01 mg/Kg (10 mcg/Kg) IV/IO (AP) or 0.01 mg/Kg (10 mcg/Kg) IM/SC (P).

0.02 mg/Kg (20 mcg/Kg) IN (EMT).

(Repeat dose prn to maintain opioid reversal to Max 0.1 mg/Kg or 2 mg).

Contraindications:

KSAR.

Side effects:

Acute reversal of narcotic effect ranging from nausea and vomiting to agitation and seizures.

Additional information:

Use with caution in pregnancy.

Administer with caution to patients who have taken large dose of narcotics or are physically dependent.

Rapid reversal will precipitate acute withdrawal syndrome.

Prepare to deal with aggressive patients.

Pregnancy:

May administer. May cause acute withdrawal in Neonate if administered pre-delivery

Naloxone IV/IO/IM/SC calculations

Paediatric dose:

0.01 mg/Kg

Concentration:

0.4 mg/1 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	35 mcg	0.1 mL
6 months	6 Kg	60 mcg	0.2 mL
1 year	10 Kg	100 mcg	0.3 mL
2 years	12 Kg	120 mcg	0.3 mL
3 years	14 Kg	140 mcg	0.4 mL
4 years	16 Kg	160 mcg	0.4 mL
5 years	18 Kg	180 mcg	0.5 mL
6 years	25 Kg	250 mcg	0.6 mL
7 years	28 Kg	280 mcg	0.7 mL
8 years	31 Kg	310 mcg	0.8 mL
9 years	34 Kg	340 mcg	0.9 mL
10 years	37 Kg	370 mcg	0.9 mL
11 years	40 Kg	400 mcg	1 mL
12 years	43 Kg	400 mcg	1 mL
13 years	46 Kg	400 mcg	1 mL
14 years	49 Kg	400 mcg	1 mL
15 years	52 Kg	400 mcg	1 mL

Naloxone IN calculations (inclusive of 0.1 mL for MAD)

Paediatric dose:

0.02 mg/Kg

Concentration:

0.4 mg/1 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	70 mcg	0.3 mL
6 months	6 Kg	120 mcg	0.4 mL
1 year	10 Kg	200 mcg	0.6 mL
2 years	12 Kg	240 mcg	0.7 mL
3 years	14 Kg	280 mcg	0.8 mL
4 years	16 Kg	320 mcg	0.9 mL
5 years	18 Kg	360 mcg	1 mL
6 years	25 Kg	500 mcg	1.4 mL
7 years	28 Kg	560 mcg	1.5 mL
8 years	31 Kg	620 mcg	1.7 mL
9 years	34 Kg	680 mcg	1.8 mL
10 years	37 Kg	740 mcg	2 mL
11 years	40 Kg	800 mcg	2.1 mL
12 years	43 Kg	800 mcg	2.1 mL
13 years	46 Kg	800 mcg	2.1 mL
14 years	49 Kg	800 mcg	2.1 mL
15 years	52 Kg	800 mcg	2.1 mL

Nifedipine

Indications:

Prolapsed cord.

Adult dose:

20 mg PO.

Paediatric dose:

Not indicated.

Contraindications:

Hypotension, KSAR.

Side effects:

Asthenia / Hypotension / Headache / Dizziness / Palpitation / Vasodilatation / Lethargy / Nausea and Vomiting.

Additional information:

Close monitoring of maternal pulse and BP is required and continuous foetal monitoring should be carried out if possible.

Pregnancy:

May administer

Nitrous Oxide 50% and Oxygen 50% (Entonox®)

Indications:

Moderate to severe pain.

Adult dose:

Self-administered until pain tolerable.

Paediatric dose:

Self-administered until pain tolerable.

Contraindications:

Altered level of consciousness / Chest Injury / Pneumothorax / Shock / Recent scuba dive / Decompression sickness / Intestinal obstruction / Inhalation Injury / Carbon monoxide (CO) poisoning / KSAR.

Side effects:

Disinhibition / Decreased level of consciousness / Light headedness.

Additional information:

Do not use if patient unable to understand instructions.
In cold temperatures warm cylinder and invert to ensure mix of gases.
Advanced paramedics may use discretion with minor chest injuries.
Brand name: Entonox®.
Has an addictive property.
Caution when using Entonox® for greater than one hour for sickle cell crisis.

Pregnancy:

May administer

Ondansetron

Indications:

Management, prevention and treatment of significant nausea and vomiting.

Adult dose:

4 mg IM (P) or slow IV (AP).

Paediatric dose:

0.1 mg/Kg (100 mcg/Kg) slow IV or IM to a Max of 4 mg (AP).

Contraindications:

KSAR.

Side effects:

General:

Flushing / Headache / Sensation of warmth/ Injection site reactions (rash, urticaria, itching).

Additional information:

Caution in patients with a known history or family history of cardiac conduction intervals (QT prolongation) or if patient has history of arrhythmias or electrolyte imbalance.

Pregnancy:

Do not administer

Ondansetron calculations

Paediatric dose:

0.1 mg/Kg IV/IM

Concentration:

4 mg/2 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	350 mcg	0.2 mL
6 months	6 Kg	600 mcg	0.3 mL
1 year	10 Kg	1 mg	0.5 mL
2 years	12 Kg	1.2 mg	0.6 mL
3 years	14 Kg	1.4 mg	0.7 mL
4 years	16 Kg	1.6 mg	0.8 mL
5 years	18 Kg	1.8 mg	0.9 mL
6 years	25 Kg	2.5 mg	1.3 mL
7 years	28 Kg	2.8 mg	1.4 mL
8 years	31 Kg	3.1 mg	1.6 mL
9 years	34 Kg	3.4 mg	1.7 mL
10 years	37 Kg	3.7 mg	1.9 mL
11 years	40 Kg	4 mg	2 mL
12 years	43 Kg	4 mg	2 mL
13 years	46 Kg	4 mg	2 mL
14 years	49 Kg	4 mg	2 mL
15 years	52 Kg	4 mg	2 mL

Oxygen

Indications:

Absent / Inadequate ventilation following an acute medical or traumatic event.

SpO₂ < 94% adults and < 96% paediatrics.

SpO₂ < 92% for patients with acute exacerbation of COPD.

SpO₂ < 90% for patients with acute onset of Pulmonary Oedema.

Adult dose:

Cardiac and respiratory arrest or sickle cell crisis; 100%.

Life threats identified during primary survey;

100% until a reliable SpO₂ measurement obtained then titrate O₂ to achieve SpO₂ of 94% - 98%.

For patients with acute exacerbation of COPD, administer O₂ titrate to achieve SpO₂ 92% or as specified on COPD Oxygen Alert Card.

All other acute medical and trauma titrate O₂ to achieve SpO₂ 94% - 98%.

Paediatric dose:

Cardiac and respiratory arrest or sickle cell crisis; 100%.

Life threats identified during primary survey;

100% until a reliable SpO₂ measurement obtained then titrate O₂ to achieve SpO₂ of 96% - 98%.

All other acute medical and trauma titrate O₂ to achieve SpO₂ of 96% - 98%.

Contraindications:

Bleomycin lung injury.

Side effects:

Prolonged use of O₂ with chronic COPD patients may lead to reduction in ventilation stimulus.

Additional information:

A written record must be made of what oxygen therapy is given to every patient.

Documentation recording oximetry measurements should state whether the patient is breathing air or a specified dose of supplemental Oxygen.

Consider humidifier if oxygen therapy for paediatric patients is > 30 minutes duration.

Caution with paraquat poisoning, administer Oxygen if SpO₂ < 92%.

Avoid naked flames, powerful oxidising agent.

Pregnancy:

May administer

Oxytocin

Indications:

Control of post-partum haemorrhage.

Adult dose:

5 international units IM.

Paediatric dose:

5 international units IM.

Contraindications:

Severe cardiac dysfunction / KSAR.

Side effects:

Cardiac arrhythmias / Headache / Nausea and vomiting / Hypotension / Abdominal pain / Dizziness.

Additional information:

Ensure that a second foetus is not in the uterus prior to administration.

Avoid rapid intravenous injection (may transiently reduce blood pressure).

Store at 2 – 8°C, shelf life un-refrigerated; 3 months.

Pregnancy:

May administer; ensure second foetus not in uterus prior to administration

Paracetamol

Indications:

Adult:

Pyrexia - Temperature $> 38.3^{\circ}\text{C}$ / Mild to moderate pain.

Paediatric:

Pyrexia - Temperature $> 38.5^{\circ}\text{C}$ / Mild to moderate pain.

Adult dose:

1 g PO (EMT, P, AP).

1 g slow IV infusion (AP), if estimated weight < 50 Kg; 15 mg/Kg slow IV.

Palliative Care:

1 g PO (Repeat x 1 prn).

Paediatric dose:

PO (EMT, P, AP): 20 mg/Kg PO

PR (AP)

> 1 month < 1 year - 90 mg PR

1 - 3 years - 180 mg PR

4 - 8 years - 360 mg PR

IV Infusion (AP)

< 1 year – 7.5 mg/Kg slow IV

≥ 1 year – 15 mg/Kg slow IV

Contraindications:

< 1 month old / Chronic liver disease / KSAR.

Side effects:

Long term use at high dosage or over dosage can cause liver damage and less frequently renal damage.

Additional information:

Paracetamol is contained in Paracetamol suspension and other over the counter drugs.

Consult with parent / guardian in relation to medication administration prior to arrival on scene.

For PR use be aware of the modesty of the patient, should be administered in the presence of a 2nd person.

If Paracetamol administered in the previous 4 hours, adjust the dose downward by the amount given by other sources resulting in a maximum of 20 mg/Kg.

If Paracetamol IV is administered too fast it will result in hypotension, infusion over 15 minutes recommended.

Caution with IV Paracetamol in the absence of a buretrol.

Pregnancy:

May administer

Paracetamol (Suspension) calculations

Paediatric dose:

20 mg/Kg

Concentration:

120 mg/5 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	Contraindicated	
6 months	6 Kg	120 mg	5 mL
1 year	10 Kg	200 mg	8.3 mL
2 years	12 Kg	240 mg	10 mL
3 years	14 Kg	280 mg	11.7 mL
4 years	16 Kg	320 mg	13.3 mL
5 years	18 Kg	360 mg	15 mL
6 years	25 Kg	500 mg	20.8 mL
7 years	28 Kg	560 mg	23.3 mL
8 years	31 Kg	620 mg	25.8 mL
9 years	34 Kg	680 mg	28.3 mL
10 years	37 Kg	740 mg	30.8 mL
11 years	40 Kg	800 mg	33.3 mL
12 years	43 Kg	860 mg	35.8 mL
13 years	46 Kg	920 mg	38.3 mL
14 years	49 Kg	980 mg	40.8 mL
15 years	52 Kg	1000 mg	41.7 mL

Paracetamol 6+ (Suspension) calculations

Paediatric dose:

20 mg/Kg

Concentration:

250 mg/5 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	Contraindicated	
6 months	6 Kg	120 mg	2.4 mL
1 year	10 Kg	200 mg	4 mL
2 years	12 Kg	240 mg	4.8 mL
3 years	14 Kg	280 mg	5.6 mL
4 years	16 Kg	320 mg	6.4 mL
5 years	18 Kg	360 mg	7.2 mL
6 years	25 Kg	500 mg	10 mL
7 years	28 Kg	560 mg	11.2 mL
8 years	31 Kg	620 mg	12.4 mL
9 years	34 Kg	680 mg	13.6 mL
10 years	37 Kg	740 mg	14.8 mL
11 years	40 Kg	800 mg	16 mL
12 years	43 Kg	860 mg	17.2 mL
13 years	46 Kg	920 mg	18.4 mL
14 years	49 Kg	980 mg	19.6 mL
15 years	52 Kg	1000 mg	20 mL

Paracetamol IV calculations

Paediatric dose:

7.5 mg/Kg IV (< 1 year) and 15 mg/Kg IV ($\geq$ 1 year)

Concentration:

10 mg/ 1 mL

Age	Weight	Dose	mL
Neonate	3.5 Kg	Contraindicated	
6 months	6 Kg	45 mg	4.5 mL
1 year	10 Kg	150 mg	15 mL
2 years	12 Kg	180 mg	18 mL
3 years	14 Kg	210 mg	21 mL
4 years	16 Kg	240 mg	24 mL
5 years	18 Kg	270 mg	27 mL
6 years	25 Kg	375 mg	37.5 mL
7 years	28 Kg	420 mg	42 mL
8 years	31 Kg	465 mg	46.5 mL
9 years	34 Kg	510 mg	51 mL
10 years	37 Kg	555 mg	55.5 mL
11 years	40 Kg	600 mg	60 mL
12 years	43 Kg	645 mg	64.5 mL
13 years	46 Kg	690 mg	69 mL
14 years	49 Kg	735 mg	73.5 mL
15 years	52 Kg	780 mg	78 mL

Salbutamol

Indications:

Bronchospasm / Exacerbation of COPD / Respiratory distress following submersion incident.

Adult dose:

5 mg NEB, or 0.1 mg metered aerosol spray (repeat aerosol x 11)
Repeat NEB at 5 minute intervals prn.

Paediatric dose:

< 5 years - 2.5 mg NEB or 0.1 mg metered aerosol spray (repeat aerosol x 5).

≥ 5 years - 5 mg NEB or 0.1 mg metered aerosol spray (repeat aerosol x 11).

(Repeat NEB at 5 minute intervals prn).

Contraindications:

KSAR.

Side effects:

Tachycardia / Tremors / Tachyarrhythmias / High doses may cause Hypokalaemia.

Additional information:

It is more efficient to use a volumiser in conjunction with an aerosol inhaler when administering Salbutamol.

If an oxygen driven nebuliser is used to administer Salbutamol for a patient with acute exacerbation of COPD it should be limited to 6 minutes maximum.

Pregnancy:

May administer

Sodium Bicarbonate

Indications:

Wide complex QRS arrhythmias and/or seizures following Tricyclic antidepressant (TCA) overdose, cardiac arrest following Tricyclic overdose, cardiac arrest following harness induced suspension trauma.

Adult dose:

1 mEq/Kg (1 mL/Kg 8.4% solution).
Max 50 mEq (50 mL 8.4%).

Paediatric dose:

Not indicated.

Contraindications:

KSAR.

Side effects:

Nil when used for emergencies.

Additional information:

Sodium Bicarbonate 8.4% is a 1 mmol/mL solution.

Pregnancy:

May administer

Sodium Chloride 0.9%

Indications:

IV/IO fluid for pre-hospital emergency care.

Contraindications:

KSAR.

Adult dose:

Keep vein open (KVO) or medication flush for cardiac arrest prn.

Asystole / PEA: Consider fluid challenge 1 L IV/IO (repeat prn).

Crush injury: 20 mL/Kg IV/IO infusion.

Suspension Trauma: 2 L IV (Maintain systolic BP > 90 mmHg).

Hypothermia: 250 mL IV/IO infusion (warmed to 40°C approx.) (Repeat to max 1 L).

Neck of femur / Sepsis / Symptomatic bradycardia / Tachycardia
-Torsades de pointes: 250 mL IV infusion.

Decompression illness / Sepsis with poor perfusion: 500 mL IV/IO infusion.

Shock from blood loss: 500 mL IV/IO infusion. Repeat in aliquots of 250 mL IV/IO to maintain SBP of 90-100 mmHg. For associated Head injury with GCS ≤ 8 maintain SBP of 120 mmHg.

Burns: > 25% TBSA and / or 1 hour from time of injury to ED, 1000 mL IV/IO infusion.

> 10% TBSA consider 500 mL IV/IO infusion.

Adrenal insufficiency / Glycaemic Emergency / Heat Related Emergency / Sick Cell Crisis: 1,000 mL IV/IO infusion.

Anaphylaxis and Postpartum Haemorrhage: 1,000 mL IV/IO infusion (repeat x 1 prn).

Post-resuscitation care: 250 mL IV/IO infusion, if persistent hypotension to maintain SBP > 100 mmHg or MAP > 70 mmHg.

Sodium Chloride 0.9%contd

Paediatric dose:

Glycaemic Emergency / Neonatal Resuscitation / Sick Cell Crisis: 10 mL/Kg IV/IO infusion.

Hypothermia: 10 mL/Kg IV/IO infusion (warmed to 40°C approx.) (repeat x 1 prn).

Haemorrhagic shock: 10 mL/Kg IV/IO repeat prn if signs of inadequate perfusion.

Anaphylaxis: 20 mL/Kg IV/IO infusion (repeat x 1 prn).

Adrenal insufficiency / Crush injury / Septic shock / Suspension Trauma / Symptomatic Bradycardia / Suspension Trauma: 20 mL/Kg IV/IO infusion.

Asystole / PEA: Consider fluid challenge 20 mL/Kg IV/IO.

Post-resuscitation care: 20 mL/Kg IV/IO infusion if persistent poor perfusion or < 5th percentile SBP.

Burns: > 10% TBSA and/or > 1 hour from time of injury to ED:

5 – 10 years: 250 mL IV/IO,

> 10 years: 500 mL IV/IO.

Side Effects:

Excessive volume replacement may lead to heart failure.

Additional information:

Sodium Chloride 0.9% (NaCl) is the IV/IO fluid of choice for pre-hospital emergency care.

For KVO use 500 mL pack only.

Medication flush used in adult and paediatric cardiac arrest.

Pregnancy:

May administer

Sodium Chloride 0.9% calculations

Paediatric dose:

10 mL/Kg or 20 mL/Kg

Haemorrhagic shock & neonate:

10 mL/Kg

Age	Weight	10 mL/Kg	20 mL/Kg
Neonate	3.5 Kg	35 mL	Contraindicated
6 months	6 Kg	60 mL	120 mL
1 year	10 Kg	100 mL	200 mL
2 years	12 Kg	120 mL	240 mL
3 years	14 Kg	140 mL	280 mL
4 years	16 Kg	160 mL	320 mL
5 years	18 Kg	180 mL	360 mL
6 years	25 Kg	250 mL	500 mL
7 years	28 Kg	280 mL	560 mL
8 years	31 Kg	310 mL	620 mL
9 years	34 Kg	340 mL	680 mL
10 years	37 Kg	370 mL	740 mL
11 years	40 Kg	400 mL	800 mL
12 years	43 Kg	430 mL	860 mL
13 years	46 Kg	460 mL	920 mL
14 years	49 Kg	490 mL	980 mL
15 years	52 Kg	520 mL	1040 mL

Tenecteplase

Indications:

Patient conscious, coherent and understands therapy.

Patient consent obtained.

Confirmed STEMI.

Patient not suitable for PPCI from a time or clinical perspective.

Adult dose:

< 60 Kg: 30 mg (6 mL).

≥ 60 < 70 Kg: 35 mg (7 mL).

≥ 70 < 80 Kg: 40 mg (8 mL).

≥ 80 < 90 Kg: 45 mg (9 mL).

≥ 90 Kg: 50 mg (10 mL).

Paediatric dose:

Not indicated.

Tenecteplasecontd

Contraindications:

Haemorrhagic stroke or stroke of unknown origin at any time.

Ischaemic stroke in previous 6 months.

Central nervous system damage or neoplasms.

Recent major trauma/surgery/head injury (within 3 weeks).

Gastro-intestinal bleeding within the last month.

Active peptic ulcer.

Known bleeding disorder.

Oral anticoagulant therapy.

Aortic dissection.

Transient ischaemic attack in preceding 6 months.

Pregnancy and within one week post-partum.

Non-compressible punctures.

Traumatic resuscitation.

Refractory hypertension (Sys BP > 180 mmHg).

Advanced liver disease.

Infective endocarditis.

Side effects:

Haemorrhage predominantly superficial at the injection site, ecchymoses are observed commonly but usually do not require any specific action, stroke (including intracranial bleeding) and other serious bleeding episodes.

Additional Information:

Enoxaparin should be used as antithrombotic adjunctive therapy.

Pregnancy:

Discuss with receiving cardiologist.

Ticagrelor

Indications:

Identification of ST Elevation Myocardial Infarction (STEMI) if transporting to PPCI centre.

Adult dose:

Loading dose of 180 mg PO.

Paediatric dose:

Not indicated.

Contraindications:

Hypersensitivity to the active substance (Ticagrelor) or to any of the excipients, active pathological bleeding, history of intracranial haemorrhage, moderate to severe hepatic impairment.

Side effects:

Dyspnoea, epistaxis, gastrointestinal haemorrhage, subcutaneous or dermal bleeding, bruising and procedural site haemorrhage.

Other undesirable effects include intracranial bleeding, elevations of serum creatinine and uric acid levels. Consult SmPC for a full list of undesirable effects.

Additional information:

Special authorisation: Advanced Paramedics and Paramedics are authorised to administer Ticagrelor 180 mg PO following identification of STEMI and medical practitioner instruction.

If a patient has been loaded with an anti-platelet medication (other than Aspirin), prior to the arrival of the practitioner, the patient should not have Ticagrelor administered.

Pregnancy:

Discuss with receiving cardiologist

Tranexamic Acid

Indications:

Suspected significant internal or external haemorrhage associated with trauma.

Postpartum Haemorrhage.

Adult Dose:

1 g IV/IO (infusion in 100 mL NaCl).

Paediatric Dose:

Not indicated.

Contraindications:

Hypersensitivity to the active substance or to any of the excipients, acute venous or arterial thrombosis, history of convulsions, severe hepatic impairment.

Side Effects:

Common:

Diarrhoea / Nausea / Vomiting.

Other undesirable effects include:

Visual disturbance / Impaired coloured vision / Dizziness / Headache.

Additional Information:

Caution with head injury.

Pregnancy:

May administer

Commonly Prescribed Medications

Generic name	Brand name	Indication
Alprazolam	Xanax	Anxiety
Amlodipine	Istin, Acerycal, Coverdipine, Exforge, Exforger HCT, Konverg, Konverge Plus	Hypertension
Amoxicillin	Augmentin, Amoclav, Oramox, Clavamel, Co-Amoxiclav, Geramox, Germentin, Pinamoz	Infections
Atorvastatin	Lipitor, Atozet	Hyperlipidaemia
Bisoprolol	Bisacor, Bisop, Cardicor, Cosimprel	Hypertension
Codeine	Codipar, Kapake, Maxilief, Migraleve, Nurofen Plus, Solpadeine, Solpadol, Tylex, Uniflu	Pain
Diazepam	Anxicalm, Stesolid	Anxiety, alcohol withdrawal, seizures
Diclofenac	Difene, Diclac, Arthrotec, Voltarol	Inflammation, pain
Escitalopram	Lexapro	Depression, anxiety
Esomeprazole	Nexium, Emazole, Nepramel, Nexazole, Vimovo	Dyspepsia, peptic ulcer disease, GI reflux disease
Ferrous Fumarate & Ferrous Sulphate	Galfer, Ferrograd, Pharmaton	Iron deficiency

Commonly Prescribed Medications

Generic name	Brand name	Indication
Folic Acid	Clonfolic	Anaemia, Prevention of neural tube defects
Furosemide	Frumil,	Fluid build-up
Lansoprazole	Zoton, Zomel	Ulcers, reflux
Lercanidipine	Zanidip, Lecalpin	Hypertension
Levothyroxine Sodium	Eltroxin	Thyroid hormone deficiency
Macrogol, Combinations	Movicol, Molaxole, Moviprep Laxido	Constipation
Metformin	Glucophage, Janumet, Jentadueto, Komboglyze, Synjardy, Xigduo	Diabetes, polycystic ovarian syndrome
Mirtazapine	Mirap Zispin, Zismirt	Depression
Omeprazole	Losamel, Losec	Reflux, ulcers
Pantoprazole	Protium, Pantoloc Control, Somac Control	Reflux oesophagitis, Ulcers
Perindopril	Coversyl, Acerycal, Cosimpriel, Coverdine	Hypertension, CHF
Prednisolone (Systemic)	Deltacortril	Multiple

Commonly Prescribed Medications		
Generic name	Brand name	Indication
Pregabalin	Lyrica	Pain, epilepsy, anxiety
Ramipril	Tritace, Trinomia	Hypertension, CHF
Rosuvastatin	Crestor	Cholesterol
Salbutamol (Inhaled)	Ventolin, Salamol, Ipramol nebules	Asthma, COPD
Salmeterol	Seretide, Eklira, Seebri, Spiriva, Incruse, Anoro, Foradil, Striverdi, Bricanyl, Flixotide, Relvar	Asthma, COPD
Sertraline	Lustral, Depreger, Seretral	Depression
Venlafaxine	Effexor, Ireven	Anti-depressant
Warfarin	Warfant, warfarin Teva	Blood clots
Zolpidem	Stilnoct	Insomnia
Zopiclone	Zimovane	Insomnia

Commonly Prescribed Respiratory Medications

Brand name	Generic name	Indication
Asthma and COPD		
Atrovent	Ipratropium	COPD
Becotide	Beclometasone	Asthma
Deltacortril	Prednisolone	Inflammatory respiratory conditions
Flixotide and combination inhalers	Fluticasone	Asthma and COPD
Foradil and combination	Formoterol	COPD
Incruse and combination inhalers	Umeclidinium	COPD
Serevent and combination inhalers	Salmeterol	Asthma and COPD
Singulair	Montelukast	Asthma prophylaxis
Spiriva	Tiotropium	COPD
Uniphyllin	Theophylline	Asthma
Ventolin	Salbutamol	Asthma
Allergies		
Claritin	Loratidine	Allergies
Neoclaritin	Desloratidine	Allergies

Commonly Prescribed Respiratory Medications		
Brand name	Generic name	Indication
Allergies		
Phenergan	Promethazine	Allergies
Piriton	Chlorphenamine	Allergies
Telfast	Fexofenadine	Allergies
Xyzal	Levocetirizine	Allergies
Zirtek	Cetirizine	Allergies
Cough		
Benylin chesty	Guaifenesin	Expectorant
Benylin dry	Dextromethorphan	Suppressant
Codinex	Codeine	Suppressant
Exputex	Carbocisteine	Mucolytic
Nasal congestion		
Avamys, dymista and flixonase	Fluticasone	Allergic rhinitis
Beconase	Beclometasone	Allergic rhinitis
Nasacort	Triamcinolone	Allergic rhinitis
Nasonex	Mometasone	Allergic rhinitis
Sudafed and other cold and flu products	Pseudoephedrine	Decongestant

Commonly Prescribed Cardiovascular Medications

Brand name	Generic name	Indication
Antiarrhythmics		
Cardicor	Bisoprolol	Cardiac arrhythmia
Cordarone	Amiodarone	Cardiac arrhythmia
Lanoxin	Digoxin	Cardiac arrhythmia
Tenormin	Atenolol	Cardiac arrhythmia
Verapamil	Diltiazem	Cardiac arrhythmia
Anticoagulants		
Eliquis	Apixaban	Stroke prevention
Pradaxa	Dabigatran	Stroke prevention
Xarelto	Rivaroxaban	Stroke prevention
Warfant	Warfarin	Stroke prevention
Antiplatelets		
Brilique	Ticagrelor	Stroke prevention
Nu-seal aspirin	Acetylsalicylic acid	Stroke prevention
Plavix	Clopidogrel	Stroke prevention
Anti-hypertensives		
Atacand	Candesartan	Hypertension
Cardura	Doxazosin	Hypertension
Cozaar	Losartan	Hypertension
Istin	Amlodipine	Hypertension

Commonly Prescribed Cardiovascular Medications

Brand name	Generic name	Indication
Anti-hypertensives		
Micardis	Telmisartan	Hypertension
Tritace	Ramipril	Hypertension
Zanidip	Lercanidipine	Hypertension
Zestril	Lisinopril	Hypertension
Diuretics		
Aldactone	Spirolactone	Hypertension
Burinex	Bumetanide	Hypertension
Centyl	Bendroflumethiazide	Hypertension
Frumil	Furosemide plus amiloride	Hypertension
Natrilix	Indapamide	Hypertension
Hypercholesterolaemia		
Crestor	Rosuvastatin	High cholesterol
Ezetrol	Ezetimbe	High cholesterol
Inegy	Simvastatin plus ezetimbe	High cholesterol
Lipitor	Atorvastatin	High cholesterol
Lipostat	Pravastatin	High cholesterol
Zocor	Simvastatin	High cholesterol

Commonly Prescribed Anti-Infective Medications

Brand name	Generic name	Indication
Antibiotics		
Augmentin	Co-amoxiclav	Respiratory
Ciproxin	Ciprofloxacin	Urinary tract
Erythroped	Erythromycin	Respiratory & skin
Flucillin, Geriflox	Flucloxacillin	Skin infections
Keflex	Cephalexin	Respiratory
Klacid	Clarithromycin	Respiratory & skin
Monotrim	Trimethoprim	Urinary tract
Macrochantin	Nitrofurantoin	Urinary tract
Pinamox, Oramox	Amoxicillin	Respiratory
Rifater	Rifampicin	Tuberculosis
Septtrin	Co-trimoxazole	Pneumonia
Vibramycin	Doxycycline	Sinus infection
Zinnat	Cefuroxime	Respiratory
Antifungals		
Canesten	Clotrimazole	Thrush
Daktarin	Miconazole	Athletes foot
Diflucan	Fluconazole	Thrush
Sporanox	Itraconazole	Antifungal

Commonly Prescribed Anti-Infective Medications		
Brand name	Generic name	Indication
Antivirals		
Famvir	Famciclovir	Shingles
Valtrex	Valciclovir	Shingles
Tamiflu	Oseltamivir	Influenza
Zovirax	Aciclovir	Herpes simplex
Antiprotozoals		
Avloclor	Chloroquine	Antimalarial
Lariam	Mefloquine	Antimalarial
Malarone	Atovaquone + proguanil	Antimalarial
Paludrine	Proguanil	Antimalarial
Quinine	Quinine	Antimalarial
Vermox	Mebendazole	Threadworms
Vibramycin	Doxycycline	Antimalarial

Commonly Prescribed Diabetes Medications

Brand name	Generic name	Indication
Various brands	Insulin	Type I & type II diabetes
Byetta	Exantide	Type II diabetes
Diamicron	Gliclazide	Type II diabetes
Forxiga	Dapagliflozin	Type II diabetes
Glucophage	Metformin	Type II diabetes
Invokana	Canagliflozin	Type II diabetes
Janumet	Metformin & sitagliptin	Type II diabetes
Januvia	Sitagliptin	Type II diabetes
Jardiance	Empagliflozin	Type II diabetes
Jentadueto	Metformin & linagliptin	Type II diabetes
Komboglyze	Metformin & saxagliptin	Type II diabetes
Onglyza	Saxagliptin	Type II diabetes
Trajenta	Linagliptin	Type II diabetes
Victoza	Liraglutide	Type II diabetes
Xigduo	Metformin & dapagliflozin	Type II diabetes

Commonly Prescribed Alimentary Tract Medications

Brand name	Generic name	Indication
Buscopan	Hyoscine	Antispasmodic
Duphalac	Lactulose	Constipation
Gaviscon	Sodium alginate with potassium bicarbonate	Dyspepsia and gastro-oesophageal reflux disease
Imodium	Loperamide/arret	Diarrhoea
Losec	Omeprazole	Gastric/duodenal ulcer
Maalox	Simeticone + aluminium hydroxide + magnesium hydroxide	Dyspepsia and gastro-oesophageal reflux disease
Maxolon	Metoclopramide	Nausea
Motilium	Domperidone	Nausea
Movicol	Macrogol	Constipation
Nexium	Esomeprazole	Gastric/duodenal ulcer
Protium	Pantoprazole	Gastric/duodenal ulcer
Senokot	Senna	Constipation
Spasmonal	Alverine citrate	Antispasmodic
Zantac	Ranitidine	Gastric/duodenal ulcer
Zoton	Lansoprazole	Gastric/duodenal ulcer

Commonly Prescribed Epileptic Medications

Brand name	Generic name	Indication
Ativan	Lorazepam	Status epilepticus
Buccolam	Midazolam	Status epilepticus
Epanutin	Phenytoin	Focal & tonic-clonic
Epilim	Sodium valproate	All forms of epilepsy & bipolar disorder
Frisium	Clobazam	Adjunct in epilepsy
Fycompa	Perampanel	Focal seizures
Keppra	Levetiracetam	Focal & tonic-clonic
Lamictal	Lamotrigine	Focal & tonic-clonic & bipolar disorder
Lyrica	Pregabalin	Focal seizures & neuropathic pain
Neurontin	Gabapentin	Focal seizures & neuropathic pain
Phenobarbital	Phenobarbital	All forms of epilepsy
Tegretol	Carbazepine	Focal & tonic-clonic & trigeminal neuralgia
Topamax	Topiramate	Focal & tonic-clonic & migraine prophylaxis
Trileptal	Oxcarbazepine	Focal & tonic-clonic
Vimpat	Lacosamide	Focal seizures

Commonly Prescribed Psychiatric Medications		
Brand name	Generic name	Indication
Anxiolytics		
Librium	Chlordiazepoxide	Short-term use in anxiety
Valium, anxicalm	Diazepam	Short-term use in anxiety
Xanax, gerax	Alprazolam	Short-term use in anxiety
Attention deficit hyperactivity disorder		
Ritalin, concerta, equasym, medikinet	Methylphenidate	ADHD
Strattera	Atomoxetine	ADHD
Tyvense	Lisdexamfetamine	ADHD refractory to methylphenidate
Antidepressants		
Amitriptyline	Amitriptyline	Depressive illness
Cipramil	Citalopram	Depressive illness
Cymbalta	Duloxetine	Depressive illness
Efexor	Venlafaxine	Depressive illness
Lexapro	Escitalopram	Depressive illness
Lustral	Sertraline	Depressive illness
Molipaxin	Trazodone	Depressive illness
Priadel	Lithium citrate	Bipolar & mania

Commonly Prescribed Psychiatric Medications

Brand name	Generic name	Indication
Antidepressants		
Prothiaden	Dosulepin	Depressive illness
Prozac	Fluoxetine	Depressive illness
Seroxat	Paroxetine	Depressive illness
Valdoxan	Agomelatine	Depressive illness
Zispin	Mirtazepine	Depressive illness
Antipsychotics		
Abilify	Aripiprazole	Schizophrenia/mania
Clozaril	Clozapine	Schizophrenia/mania
Risperdal	Risperidone	Schizophrenia/mania
Seroquel	Quetiapine	Schizophrenia/mania
Zyprexa	Olanzapine	Schizophrenia/mania
Sedatives		
Dalmane	Flurazepam	Insomnia
Mogadon	Nitrazepam	Insomnia
Nortem	Temazepam	Insomnia
Stilnoct	Zolpidem	Insomnia
Zimovane	Zopiclone	Insomnia

Hospital Contact Numbers & PCR Codes

Hospital	Main Line	ED	PCR Code
Armagh			
Craigavon Area Hospital	(048) 38334444	(048) 37561750	CAH
Cavan			
Cavan Monaghan Hospital	(049) 4376000	(049) 4376607	CGH
Clare			
Ennis Hospital	(065) 6824464	Local Injury Unit (065) 6863121	ERH
Cork			
Bantry General Hospital	(027) 50133	Local Injury Unit (027) 52929	BGH
Cork University Hospital	(021) 4546400	(021) 4920222	CUH
Cork University Maternity Hospital	(021) 4920500	(021) 4920598	CUMH
Mallow General Hospital	(022) 21251	(022) 52506	MLGH
Mercy University Hospital	(021) 4271971	(021) 4935241	MUH
South Infirmary Victoria Hospital Cork	(021) 4926100	n/a	SIVH

Hospital	Main Line	ED	PCR Code
Derry			
Athnagelvin Hospital	(048) 71345171	(048) 71611379	AHD
Donegal			
Letterkenny University Hospital	(074) 9125888	(074) 9123595	LGH
Down			
Daisy Hill Hospital, Newry	(048) 30835000	(048) 30832406 (048) 37562092	DHH
Dublin			
AMNCH (Tallaght) - Adult	(01) 4142000	(01) 4143536	AMNA
AMNCH (Tallaght) - Paediatric	(01) 4142000	(01) 4143510	AMNC
Beaumont Hospital	(01) 8093000	(01) 8092714	BHD
Connolly Hospital Blanchardstown	(01) 6465000	(01) 6466250 (01) 6466251 (01) 6466191	CHD
Coombe Women's Hospital	(01) 4085200	(01) 4085531	CWH
Mater Misericordiae Hospital	(01) 8032000	(01) 8032651 (01) 8032223	MMH
National Children's Hospital (Temple St)	(01) 8784200	(01) 8784829	TCH

Hospital	Main Line	ED	PCR Code
Dublin (cont.)			
National Maternity Hospital, Holles St	(01) 6373100	n/a	NMH
Our Lady's Hospital for Sick Children, Crumlin	(01) 4096100	(01) 4096346 (01) 4096326	OLHC
Rotunda Hospital	(01) 8171700	n/a	RMH
Royal Victoria Eye and Ear Hospital	(01) 6644600	(01) 6343648	RVH
St James's Hospital	(01) 4103000	(01) 4162774 (01) 4162775 (01) 4162776	SJH
St Michael's, Dun Laoghaire	(01) 2806901	(01) 6639815	SMH
St Vincent's University Hospital	(01) 2214000	(01) 2214358	SVH
Fermanagh			
Erne Hospital, Enniskillen	(048) 66382000	n/a	EHE
Galway			
Portiuncula Hospital, Ballinasloe	(0909) 648200	(0909) 648248	PHB
University Hospital Galway	(091) 524222	(091) 544556	UHG

Hospital	Main Line	ED	PCR Code
Kerry			
University Hospital Kerry	(066) 7184000		KgH
Kildare			
Naas General Hospital	(045) 849500	(045) 849909	NGH
Kilkenny			
St Luke's General Hospital	(056) 7785000	(056) 7717008	SLK
Laois			
Midland Regional Hospital, Portlaoise	(057) 8621364	(057) 8696028	PMR
Limerick			
University Maternity Hospital	(061) 327455	n/a	LRMH
University Hospital Limerick	(061) 301111 (061) 482219	(061) 482120	LRH
St John's Hospital Limerick	(061) 462222	Local Injury Unit (061) 462134	SJHL

Hospital	Main Line	ED	PCR Code
Louth			
Our Lady of Lourdes Hospital	(041) 9837601	(041) 9832321	LOL
Mayo			
Mayo General Hospital	(094) 9021733	(094) 9042377	MOGH
Offaly			
Midland Regional Hospital Tullamore	(057) 9321501	(057) 9358021	TMR
Sligo			
Sligo University Hospital	(071) 9171111	(071) 9174506	SGH
Tipperary			
Nenagh Hospital	(067) 31491		NRH
South Tipperary General Hospital, Clonmel	(052) 6177000	(052) 6177042	STGH

Hospital	Main Line	ED	PCR Code
Waterford			
University Hospital Waterford	(051) 848000	(051) 842444 (051) 842445 (051) 842582	WRH
Westmeath			
Midland Regional Hospital - Mullingar	(044) 9340221	(044) 9394129	MMR
Wexford			
Wexford General Hospital	(053) 9153000	(053) 9153313	WGH

Primary PCI Line		1800 74 22 22
Then select number below for PPCI lab in:		
1	University Hospital Galway	
2	University Hospital Limerick	
3	Cork University Hospital	
4	University Hospital Waterford	
5	Mater Misericordiae Hospital, Dublin	
6	St Vincent’s University Hospital, Dublin	
7	St James’s Hospital, Dublin	
8	Altnagelvin Hospital, Derry	



Ruler

Pupil Sizes

1mm	2mm	3mm	4mm	5mm	6mm	7mm	8mm	9mm
								