Pre-Hospital
Emergency Care
Council

Field Guide 2011

for

Pre-Hospital Emergency Care Practitioners

Name: .....

.....

Pin: .....

Contents

Field Guide

Published 2011

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.

Medications Update

Please refer to www.phecc.ie or the Field Guide Smart Phone App for up-to-date medications information.

PHECC Field Guide for Practitioners 2011

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Acknowledgement
Our thanks to the 600+ Practitioners who helped to develop this guide by participating in the consultation process.

Introduction

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 and infrequent clinical encounters. It also gives values for clinical measurements i.e. GCS.

This 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.

Medications may be administered provided

1. The Practitioner is in good standing on the PHECC Register.
2. The Practitioner complies with the CPGs.
3. The Practitioner is acting (paid or voluntary) on behalf of an organisation approved by PHECC to implement the CPGs.
4. The Practitioner is authorised, 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 Schedule 7.

Paediatric values

This guide has adopted the Braselow tape colour scheme to assist with calculations.

3-5Kg	6-7Kg	10-11Kg	12-14Kg	15-18Kg	19-22Kg	24-28Kg	30-36Kg

Notes

Notes

Aid to patient decision-making capacity

1. Patient verbalises/communicates **<u>understanding</u>** of clinical situation?	**Yes**
	No
2. Patient verbalises/communicates appreciation of applicable **<u>risk</u>**?	**Yes**
	No
3. Patient verbalises/communicates ability to make **<u>alternative</u>** plan of care?	**Yes**
	No

If 'yes' to <u>all</u> of the above, the patient has demonstrated decision-making capacity and their decision must be respected.

If 'no' to <u>any</u> of the above, the patient is deemed not to possess current decision-making capacity.

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

Asthma decisions

Moderate asthma exacerbation	Acute severe asthma	Life-threatening asthma
PEFR > 50-75% best or predicted. Increased symptoms. No features of 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.	PEFR < 33% best or predicted. Any one of the following in a patient with severe asthma: SpO_2 < 92%. Silent chest. Cyanosis. Feeble respiratory effort Bradycardia Arrhythmia Hypotension Exhaustion Confusion Unresponsive
No indication for $MgSO_4$		**Consider $MgSO_4$**

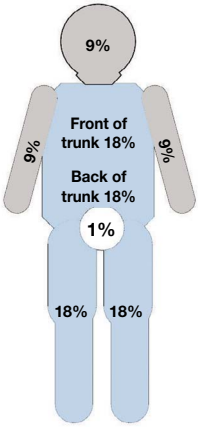
AVPU

The definition of AVPU from a pre-hospital emergency care perspective is:

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

Burns – adult

Wallace's Rule of Nines



Adult

Palm of patient's hand = approximately 1% TBSA
Cooling time for burns 15 min. Chemical burns 20 min.
Adults: > 10% TBSA consider IV infusion of NaCl > 25% TBSA burned and or time from injury to ED > 1 hour = IV infusion of NaCl
Caution with burns gel if > 10% TBSA

Glasgow Coma Scale

Adult & Child		Infant
Eye Opening		
Spontaneous	**4**	Spontaneous
To voice	**3**	To voice
To pain	**2**	To pain
No response	**1**	No response
Verbal Response		
Orientated	**5**	Coos, babbles, smiles
Confused	**4**	Irritable, crying
Inappropriate words	**3**	Cries/screams to pain
Incomprehensible sounds	**2**	Moans, grunts
No response	**1**	No response
Motor Response		
Obeys command	**6**	Spontaneous
Localises to pain	**5**	Withdraws from touch
Withdraws from pain	**4**	Withdraws from pain
Abnormal flexion	**3**	Abnormal flexion
Extension	**2**	Extension
No response	**1**	No response

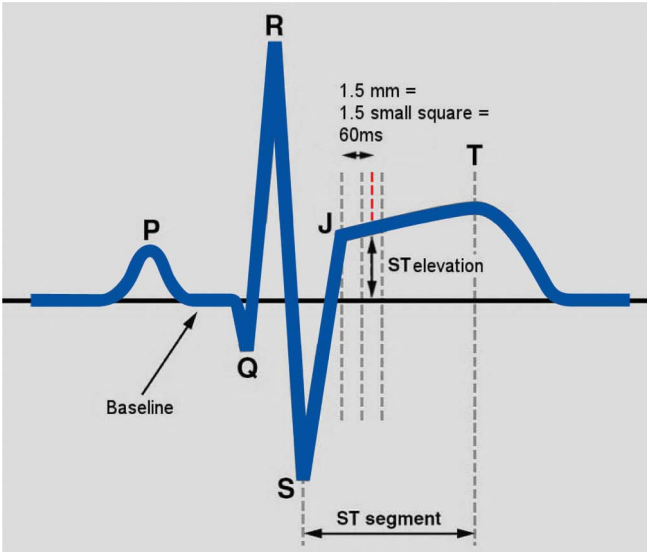
Hypothermia

Temp	Direction for cardiac arrest
Mild > 34°C	Follow CPGs but no active re-warming
Moderate 30-34°C	Follow CPGs but double medication interval until temperature > 34°C & no active re-warming beyond 32°C
Severe < 30°C	Follow CPGs but limit defibrillation to 3 shocks, withhold medications until temperature > 30°C & no active re-warming beyond 32°C
Temp	**Direction for bradycardia**
Mild > 34°C	Follow CPGs
Moderate 30-34°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

Re-warming: NaCl at 40°C

MI location and lead placement

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



ECG interpretations

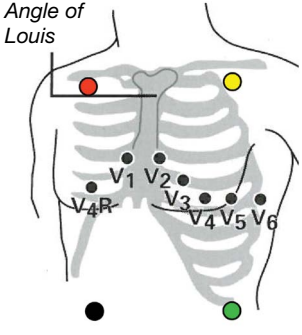
Rate = No. of R waves in 6 seconds x 10

No. of L 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)

STEMI definition

ST elevation in two or more contiguous leads (2 mm in leads V2 and V3, or 1 mm in any other leads) or new onset LBBB.



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

V4 fifth intercostal space at left midclavicular line

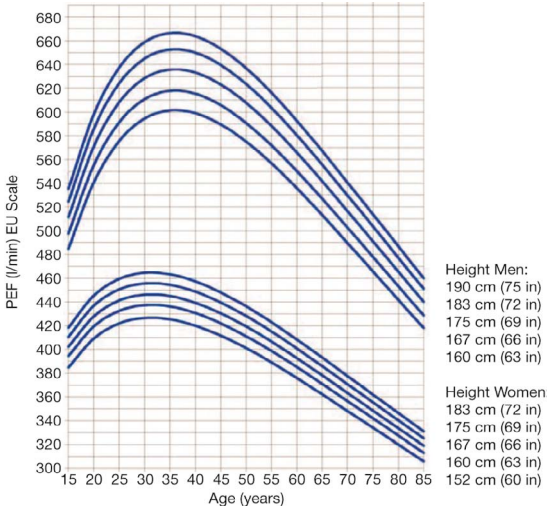
V5 level with lead V4 at left anterior axillary line

V6 level with lead V5 at left midaxillary line

Peak Expiratory Flow Rate – adult

Normal Values

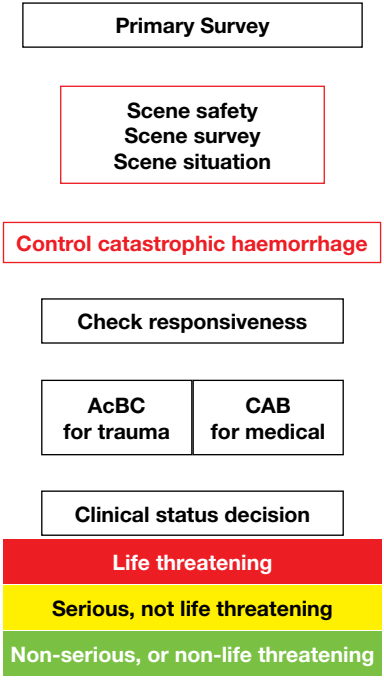
For use with EU/EN13826 scale PEF meters only



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.

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

Primary survey



Spinal immobilisation decision

1. Any dangerous mechanism?

Fall ≥ 1 meter / 5 steps
Axial load to head
MVC > 100 Km/hour, roll over or ejection from vehicle
Bicycle or ATV collision
Pedestrian v vehicle

If any → IMMOBILISE

2. Ensure patient is low risk

Simple rear end MVC (excluding push into oncoming traffic or hit by bus or truck)
No neck or back pain
Absence of midline c-spine or back tenderness

If not → IMMOBILISE

3. Ensure that all factors for spinal injury rule-out are present:

a) GCS = 15
b) Communication effective with patient (not intoxicated with alcohol or drugs)
c) No dangerous mechanism, distracting injury of penetrating trauma
d) No numbness or tingling in extremities
e) No midline pain or tenderness
f) Patient voluntary able to actively rotate neck 45° left & right pain free
g) Patient can walk pain free

If not → IMMOBILISE

If in doubt, immobilise

Stroke FAST assessment

F – Facial weakness
Can the patient smile?
Has the mouth or an eye drooped?
Which side?

A – Arm weakness
Can the patient raise both arms and maintain for 5 seconds?

S – Speech problems
Can the patient speak clearly and understand what you say?

T – Time when last normal

Don't forget to check glucose!

Refer to FAST + in ASHICE message (Page 52).

Trauma Assessment

Cardiopulmonary function	Measured value	Score
Respiratory Rate	10-29 / min	4
	> 29 / min	3
	6-9 / min	2
	1-5 / min	1
	None	0
Systolic Blood Pressure	≥ 90 mm Hg	4
	76-89 mm Hg	3
	50-75 mm Hg	2
	1-49 mm Hg	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

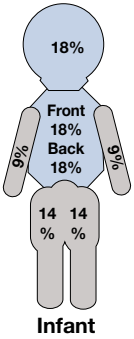
GCS	< 13	Heart Rate	> 120
Systolic BP	< 90	Revised Trauma Score	< 12
Respiratory Rate	< 10 or > 29	Mechanism of Injury	

Notes

PAEDIATRIC

Burns – paediatric

Wallace's Rule of Nines



Palm of patient's hand = approximately 1% TBSA
Cooling time for burns 15 min. Chemical burns 20 min.
Paediatric (≥ 5 years): > 10% TBSA burned and or time from injury to ED > 1 hour = IV infusion of NaCl
Caution with burns gel if > 10% TBSA

Paediatric advanced airway sizes

Age	ETT size	LMA size	I-gel size	LT size
Newborn	3 mm	1	1	0
6 months	3.5 mm	1.5	1.5	1
1 year	4 mm	2	1.5	1
2 years	4.5 mm	2	1.5	1
3 years	4.5 mm	2	2	2
4 years	5 mm	2	2	2
5 years	5 mm	2	2	2
6 years	5.5 mm	2.5	2	2
7 years	5.5 mm	2.5	2	2
8 years	6 mm	2.5	2	2
9 years	6 mm	2.5	2.5	2.5
10 years	6.5 mm	2.5	2.5	2.5
11 years	6.5 mm	3	3	2.5
12 years	7 mm	3	3	2.5
13 years	7 mm	3	3	2.5

1. **Diameter of ET tube = diameter of patient's little finger**
2. **ET size = $\frac{\text{(age in years)}}{4} + 4$**

Paediatric analgesia options

Non-pharmacological
Reassurance
Distraction therapy
Splinting

Non-opioids
Entonox®
Paracetamol
Ibuprofen
Paracetamol + Ibuprofen

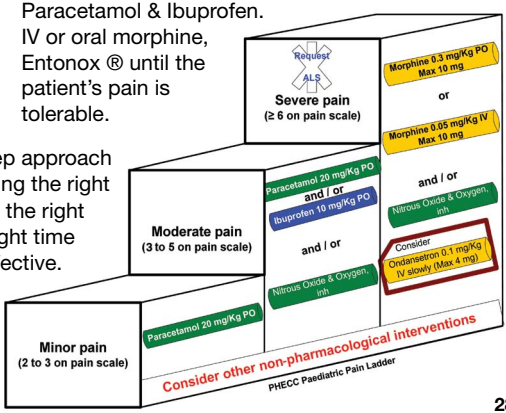
Opioids
Morphine PO
Morphine IV

The 'PHECC pain ladder' is modelled on the World Health Organisation pain ladder for pain relief.

If a patient presents with pain, there should be prompt response in the following order (depending on scope of practice):

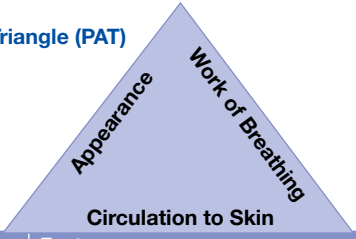
Mild pain: Oral administration of Paracetamol.
Moderate pain: inhaled Entonox ® and/or a combination of Paracetamol & Ibuprofen.
Severe pain: IV or oral morphine, Entonox ® until the patient's pain is tolerable.

This three-step approach to administering the right medication in the right dose at the right time is 80-90% effective.



Paediatric assessment

Paediatric Assessment Triangle (PAT)



Characteristics of appearance	Features
Tone	Is he moving or vigorously resisting examination? Does he have good muscle tone? Or is he limp, listless or flaccid?
Interactiveness	How alert is he? How readily does a person, object or sound distract him or draw his attention?
Consolability	Can he be consoled or comforted by the caregiver? Or is his crying and unrelieved by gentle reassurance?
Look/Gaze	Does he fix his gaze on a face? Or is there a glassy-eyed stare?
Speech/Cry	Is his 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	Sys BP
Infant (< 1)	100 - 160	30 - 60	
Toddler (1-3)	90 - 150	24 - 40	80 - 95
Pre-school (3-5)	80 - 140	22 - 34	80 - 100
School age (> 5)	70 - 120	18 - 30	90 - 110

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

Peak Expiratory Flow Rate - paediatric

Peak Expiratory Flow Rate for Paediatric Patients

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

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

WETFAG Calculations

	Neo	6 mts	1 yr	2 yr	3 yr	4 yr
W (Kg)	3.6	6	10	13	16	19
E (J)	14	24	40	52	64	76
T (mm)	3	3.5	4	4.5	4.5	5
F (mL)	36	120	200	260	320	380
A (mL)	0.4	0.6	1.0	1.3	1.6	1.9
G (mL)	18	30	50	65	80	95

	5 yr	6 yr	7 yr	8 yr	9 yr	10 yr
W (Kg)	22	25	28	31	34	37
E (J)	88	100	112	150	150	150
T (mm)	5	5.5	5.5	6	6	6.5
F (mL)	440	500	560	620	680	740
A (mL)	2.2	2.5	2.8	3.1	3.4	3.7
G (mL)	110	125	140	155	170	185

	11 yr	12 yr	13 yr
W (Kg)	40	43	46
E (J)	150	150	150
T (mm)	6.5	7	7
F (mL)	800	860	920
A (mL)	4.0	4.3	4.6
G (mL)	200	215	230

W - weight (age x 3) + 7 Kg
E - energy (4 J/Kg), (≥ 8 years, = 150J)
T - tube size (age / 4) + 4 mm
F - fluids (20 mL/Kg), neonate (10 mL/Kg)
A - adrenaline 0.01 mg/Kg (Epinephrine 1:10,000)
G - glucose (5 mL/Kg)

Wong-Baker faces

Wong-Baker faces for 3 years and older

0
No Hurt

2
Hurts Little Bit

4
Hurts Little More

6
Hurts Even More

8
Hurts Whole Lot

10
Hurts Worse

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.

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 (page 38).

c) Carry out **HSE Controller of Operations** role until relieved.

d) Liaise with Garda Controller of Operations and Local Authority Controller of Operations.

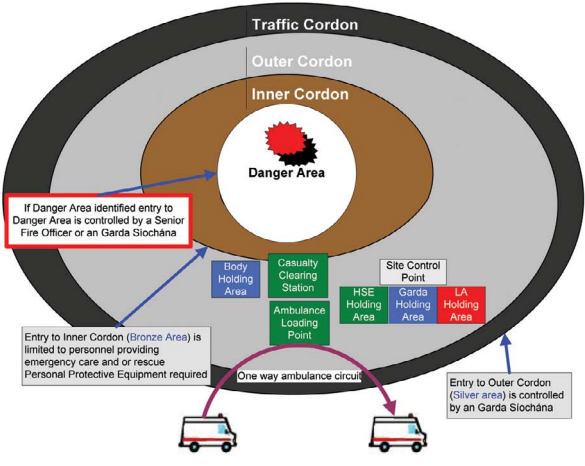
e) Select location for Holding Area.

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.)*

Site layout



Major Emergency Operations *(cont.)*

Site organisation

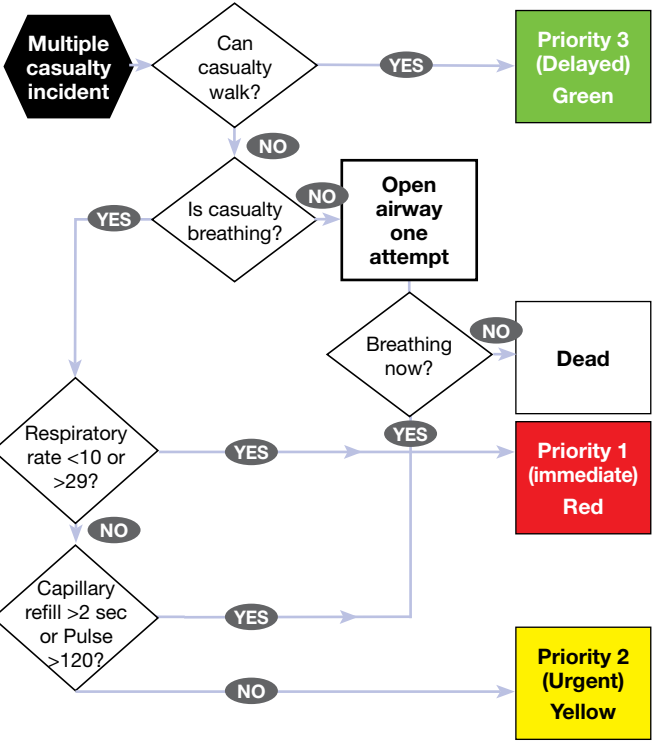
The priority is to establish CSCATTT in that order

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

Multiple casualty incident

Cardiopulmonary function	Measured value	Score	Insert score
Respiratory Rate	10–29 / min > 29 / min 6-9 / min 1-5 / min None	4 3 2 1 0	A
Systolic Blood Pressure	≥ 90 mm Hg 76-89 mm Hg 50-75 mm Hg 1-49 mm Hg No BP	4 3 2 1 0	B
Glasgow Coma Scale	13-15 9-12 6-8 4-5 3	4 3 2 1 0	C
Triage Revised Trauma Score			A+B+C

Revised Trauma Score

- 1-10 → **Priority 1 (immediate) Red**
- 11 → **Priority 2 (Urgent) Yellow**
- 12 → **Priority 3 (Delayed) Green**
- 0 → **Dead**

Triage is a dynamic process.

MISCELLANEOUS

EMS Priority Dispatch Protocols

a) AMPDS is used to identify an appropriate chief complaint code following caller interrogation by the call taker.

b) Dispatch cross reference (DCR) codes are fixed by AMPDS and cannot be changed as they are linked to software and field responder guide etc.

c) AMPDS has six designated response levels (Echo, Delta, Charlie, Bravo, Alpha & Omega) which are linked to the DCR codes.

d) PHECC published an EMS Priority Dispatch Standard which designates an appropriate response to each of the six response levels.

e) The response level to each DCR code is agreed by PHECC's Medical Advisory Group (MAG).

f) The response for specific DCR codes meet Irish clinical standards.

g) Ambulance control, when activating a response to an incident, will give the DCR code for information about the incident to the Practitioners (de-emphasising the letter in the code) and a MAG-agreed response level of Echo, Delta, Charlie, Bravo, Alpha or Omega.

h) DCR codes and dispatch levels are updated regularly.

EMS Priority Dispatch Protocols *(cont.)*

Clinical Status	Code	Description	Essential Response	Response to Scene
1 Life threatening	Echo	Life threatening – Cardiac or respiratory arrest	Ambulance with Paramedic - minimum	Lights and siren
	Delta	Life threatening other than cardiac or respiratory arrest		
2 Serious not life threatening	Charlie	Serious not life threatening – immediate		
	Bravo	Serious not life threatening – urgent		
3 Non-serious or not life threatening	Alpha	Non-serious or not life threatening		Normal traffic (no lights or siren)
	Omega	Minor illness or injury	Ambulance with EMT - minimum	

Continued overleaf...

EMS Priority Dispatch Protocols *(cont.)*

1. Abdominal Pain/Problems
2. Allergies (Reactions)/ Envenomations (Stings, Bites)
3. Animal Bites/Attacks
4. Assault/Sexual Assault
5. Back Pain (Non-Traumatic or Non-Recent Trauma)
6. Breathing Problems
7. Burns (Scalds)/Explosion (Blast)
8. Carbon Monoxide/ Inhalation/HAZCHEM/ CBRN
9. Cardiac or Respiratory Arrest/Death
10. Chest Pain (Non-Traumatic)
11. Choking
12. Convulsions/Fitting
13. Diabetic Problems
14. Drowning (Near)/Diving/ SCUBA Accident
15. Electrocution/Lightning
16. Eye Problems/Injuries
17. Falls
18. Headache
19. Heart Problems/A.I.C.D.
20. Heat/Cold Exposure
21. Haemorrhage/Lacerations
22. Inaccessible Incident/Other Entrapment (Non-Vehicle)
23. Overdose/Poisoning (Ingestion)
24. Pregnancy/Childbirth/ Miscarriage
25. Psychiatric/Abnormal Behaviour/Suicide Attempt
26. Sick Person (Specific Diagnosis)
27. Stab/Gunshot/Penetrating Trauma
28. Stroke (CVA)
29. Traffic/Transportation Incidents
30. Traumatic Injuries (Specific)
31. Unconscious/Fainting (Near)
32. Unknown Problem (Collapse 3rd Party)
33. Transfer/Interfacility/ Palliative Care
34. ACN (Automatic Crash Notification)
35. Health Care Professional Admission
36. Influenza Pandemic
37. Interfacility transfer

Please consult your Field Responder Guide for specific details.

Hypodermic needles for IM injection

Patient	Needle length		Deltoid
	mm	Inches	Gauge
< 1 month	16	5/8	25G
Children	25	1	23G
Women < 90 Kg	25	1	23G
Women > 90 Kg	38	1½	21G
Men 60 - 118 Kg	25	1	23G
Men > 118 Kg	38	1½	21G

Oxygen cylinder capacity

D pin index cylinder – 340 litres	
15 L/min	= 22 minutes
12 L/min	= 28 minutes
6 L/min	= 56 minutes
CD cylinder – 460 litres	
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

Poison care

National Poison Information Centre – 01 8092566

(APs to consider ringing for advice if > 30 minutes from ED)

Poison	Symptoms	Medication
Tricyclic (antidepressants)	Wide QRS or seizure (anticholinergic)	Sodium Bicarbonate
Organophosphate	Bradycardia & salivation (cholinergic)	Atropine
Opiate	Inadequate respirations	Naloxone
Psychostimulant	Temp ≥ 38°C ALoC, chest pain Severe headache Hypertensive Respiratory difficulty Seizure Extremely agitated No response to verbal de-escalation strategy	Midazolam

Caution: Paraquat – Do not give Oxygen

Common Tricyclic (antidepressant) Medications

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

Poison care *(cont.)*

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

Opiates Toxidrome

Morphine, Heroin, Codeine (Solpadol), Distalgesic

Neurological	Coma, seizures
Pupils	Pinpoint (miosis)
Pulse	Bradycardia
BP	Hypotension
Respirations	Depressed
Temperature	Hypothermia
GI	Constipation

Sympathomimetic Toxidrome (fight or flight)

Cocaine, Amphetamines, MDMA, Ephedrine

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

Poison care *(cont.)*

Cholinergic Toxidrome

Organiphosphates (insecticides), Mushrooms

Neurological	Confusion, drowsy, coma, muscle weakness, twitching
Pupils	Pinpointed (miosis)
Pulse	Bradycardia / Tachycardia
Skin	Sweating
Respirations	Depression, bronchospasm
GI	Salivation, Lacrimation, Urination, Defaecation, Gastric upset, Emesis (SLUDGE)

Anticholinergic Toxidrome

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

Neurological	Agitated, fits, hallucinations or drowsy, hypertonia
Pupils	Dilated
Pulse	Tachycardia, arrhythmias
BP	Hypertension
Skin	Flushed, hot and dry
Temperature	Hyperthermic
GI / GU	Urinary retention, dry mouth

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 of patient
S — Sex of patient
H — History of event
I — Illness / injury
C — Condition (vital signs & reason for pre-alerting)
E — Estimated time of arrival

Notes

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 **(age x 3) + 7 kg.**

To convert lbs to kg, divide lbs by 2.2.

Doses 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

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

Medications

Amiodarone
Indications: Ventricular Fibrillation /Ventricular Tachycardia
Adult dose: VF/VT: 5 mg/Kg IV/IO (loading dose 300 mg and 150 mg supplementary dose)
Paediatric dose: VF/VT: 5 mg/Kg IV/IO (see calculations below)
Contraindications: Known hypersensitivity to Iodine, KSAR
Side effects: Inflammation of peripheral veins, Bradycardia & AV conducting abnormalities
Additional information: If diluted mix with Dextrose 5% May be flushed with NaCl

Amiodarone calculations

Paediatric dose:
5 mg/Kg

Concentration:
300 mg/10 mL

Age	Weight	mg	mL
Neonate	3.5 Kg	17.5 mg	0.6 mL
6 months	6 Kg	30 mg	1.0 mL
1 year	10 Kg	50 mg	1.7 mL
2 years	13 Kg	65 mg	2.2 mL
3 years	16 Kg	80 mg	2.7 mL
4 years	19 Kg	95 mg	3.2 mL
5 years	22 Kg	110 mg	3.7 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

Aspirin

Indications:

Cardiac chest pain or suspected MI

Adult dose:

300 mg PO

Paediatric dose:

Not indicated

Contraindications:

Active symptomatic gastrointestinal ulcer, bleeding disorder, KSAR, patients < 16 years

Side effects:

Epigastric pain & discomfort, bronchospasm, gastrointestinal haemorrhage

Additional information:

Aspirin 300 mg is indicated for cardiac chest pain regardless if patient has taken 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.

Atropine

Indications:

Symptomatic bradycardia,

Organophosphate poison.

Adult dose:

Symptomatic Bradycardia: 0.5 mg IV (repeat 3-5 min to Max 3mg)

Organophosphate poison: 1 mg IV/IO (repeat 3-5 min to ensure minimal salivary secretions)

Paediatric dose:

Not indicated

Contraindications:

KSAR

Side effects:

Tachycardia, dry mouth, dilated pupils

Additional information:

Accidental exposure to eyes causes blurred vision

Benzylpenicillin

Indications:
Suspected or confirmed meningococcal sepsis

Adult dose:
1 200 mg IV/IO/IM

Paediatric dose:
> 8 yrs: 1200 mg IV/IO/IM
1-8 yrs: 600 mg IV/IO/IM
< 1 yr: 300 mg IV/IO/IM

Contraindications:
KSAR

Side effects:
Gastro intestinal disturbances, hypersensitivity reactions

Clopidogrel
Indications: Identification of STEMI
Adult dose: 600 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

Cyclizine

Indications:
Management, prevention and treatment of nausea & vomiting

Adult dose:
50 mg slow IV/IO

Paediatric dose:
Not indicated

Contraindications:
KSAR

Side effects:
Tachycardia, dry mouth & sedation

Notes

Dextrose 10% solution

Indications:

Blood glucose < 4 mmol/L

Adult dose:

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

Paediatric dose:

5 mL/Kg IV/IO infusion (repeat x 1 prn) (see calculations below)

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. APs use as large a vein as possible.

Dextrose 10% calculations

Paediatric dose:
500 mg/Kg (5 mL/Kg)

Concentration:
50 g/500 mL

Age	Weight	g	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	13 Kg	6.5 g	65 mL
3 years	16 Kg	8 g	80 mL
4 years	19 Kg	9.5 g	95 mL
5 years	22 Kg	11 g	110 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

Diazepam injection

Indications:

Seizure

Adult dose:

5 mg IV/IO (repeat to Max 10 mg prn)

Paediatric dose:

0.1 mg/Kg IV/IO (repeat to Max 0.4 mg/Kg or 10 mg which ever is least prn) (see over for calculations)

Contraindications:

Respiratory depression, KSAR

Side effects:

Hypotension, respiratory depression, drowsiness and light-headedness

Additional information:

Diazepam IV/IO should be titrated to effect. The maximum dose of Diazepam includes that administered by caregiver prior to arrival of Practitioner.

Diazepam IV calculations

Paediatric dose:
0.1 mg/Kg

Concentration:
10 mg/2 mL

Age	Weight	mg	mL
Neonate	3.5 Kg	0.4 mg	0.1 mL
6 months	6 Kg	0.6 mg	0.1 mL
1 year	10 Kg	1.0 mg	0.2 mL
2 years	13 Kg	1.3 mg	0.3 mL
3 years	16 Kg	1.6 mg	0.3 mL
4 years	19 Kg	1.9 mg	0.4 mL
5 years	22 Kg	2.2 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	4.0 mg	0.8 mL
12 years	43 Kg	4.3 mg	0.9 mL
13 years	46 Kg	4.6 mg	0.9 mL

Diazepam PR

Indications:

Seizure

Adult dose:

10 mg PR

Paediatric dose:

< 3 years: 2.5 mg PR

3-7 years: 5 mg PR

≥ 8 years: 10 mg PR

Contraindications:

Respiratory depression, KSAR

Side effects:

Hypotension, respiratory depression, drowsiness and light-headedness

Additional information:

Be aware of patient's modesty, should be administered in the presence of a second person. Egg & soya proteins used in manufacture, allergies to these proteins may be encountered. The maximum dose of Diazepam includes that administered by caregiver prior to arrival of Practitioner.

Notes

Enoxaparin sodium solution

Indications:

STEMI immediately following the administration of a thrombolytic agent

Adult dose:

30 mg IV bolus

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, jaundice, active gastric or duodenal ulceration, hiatal ulceration, threatened abortion, retinopathy

Side effects:

Pain, haematoma

Notes

Epinephrine (1:10 000)

Indications:

Cardiac arrest

Paediatric bradycardia unresponsive to other measures

Adult dose:

1 mg IV/IO (repeat 3-5 min prn)

Paediatric dose:

0.01 mg/Kg (0.1 mL/Kg) (repeat 3-5 min prn)
(see over for calculations)

Contraindications:

KSAR

Side effects:

None in cardiac arrest

Additional information:

Double check concentrations on pack before use

Epinephrine (1:10 000) calculations

Paediatric dose:
0.01 mg/Kg

Concentration:
1 mg/ 10 mL

Age	Weight	mg	mL
Neonate	3.5 Kg	0.04 mg	0.4 mL
6 months	6 Kg	0.06 mg	0.6 mL
1 year	10 Kg	0.1 mg	1.0 mL
2 years	13 Kg	0.13 mg	1.3 mL
3 years	16 Kg	0.16 mg	1.6 mL
4 years	19 Kg	0.19 mg	1.9 mL
5 years	22 Kg	0.22 mg	2.2 mL
6 years	25 Kg	0.25 mg	2.5 mL
7 years	28 Kg	0.28 mg	2.8 mL
8 years	31 Kg	0.31 mg	3.1 mL
9 years	34 Kg	0.34 mg	3.4 mL
10 years	37 Kg	0.37 mg	3.7 mL
11 years	40 Kg	0.40 mg	4.0 mL
12 years	43 Kg	0.43 mg	4.3 mL
13 years	46 Kg	0.46 mg	4.6 mL

Epinephrine (1:1000)

Indications:

Severe anaphylaxis

Adult dose:

0.5 mg IM (repeat every 5 min prn)

Paediatric dose: (repeat every 5 min prn)

< 6 months:	0.05 mg (0.05 mL of 1:1000)
6 months-5 years:	0.125 mg (0.13 mL of 1:1000)
6-8 years:	0.25 mg (0.25 mL of 1:1000)
> 8 years:	0.5 mg (0.5 mL of 1:1000)

Contraindications:

Nil

Side effects:

Palpitations, tachyarrthymias, hypertension, angina-like symptoms

Additional information:

Double check the concentration on pack before use

Furosemide injection
Indications: Pulmonary oedema
Adult dose: 40 mg IV
Paediatric dose: Not indicated
Contraindications: Pregnancy, hypokalaemia, KSAR
Side effects: Headache, dizziness, hypotension, arrhythmias, transient deafness, diarrhoea, nausea & vomiting
Additional information: Protect from light

Glucagon

Indications:

Hypoglycaemia (BG < 4 mmol/L) in patients unable to take oral glucose or unable to gain IV access

Adult dose:

1 mg IM

Paediatric dose:

≤ 8 years: 0.5 mg IM

> 8 years: 1 mg IM

Contraindications:

Phaechromocytoma, KSAR

Side effects:

Rare: may cause hypotension, dizziness, headache, nausea & vomiting

Additional information:

May be ineffective in patients with low storage glycogen or if use within past 24 hours. Protect from light

Glucose Gel
Indications: Blood glucose < 4 mmol/L
Adult dose: 10-20 g buccal
Paediatric dose: ≤ 8 years: 5-10 g buccal > 8 years: 10-20 g buccal
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 or Glucagon to reverse hypoglycaemia

Glyceryl Trinitrate

Indications:

ACS

Pulmonary oedema (P & AP only)

Adult dose:

ACS: 0.4 mg sublingual (repeat 3-5 min prn, to Max 1.2 mg)

Pulmonary oedema: 0.8 mg sublingual (repeat x one prn)

Paediatric dose:

Not indicated

Contraindications:

SBP < 90 mmHg, Viagra or similar used within previous 24 hours

Side effects:

Headache, transient hypotension, flushing, dizziness

Additional information:

Release first spray into air if new or not used for more than one week

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
Side effects: May cause oedema
Additional information: Paramedics are authorised to continue the established infusion Warm fluids if possible

Hydrocortisone

Indications:

Severe or recurrent anaphylactic reaction (after epinephrine and fluids have been administered)

Asthmatic patients following an anaphylactic reaction

Exacerbation of COPD

Adult dose:

200 mg IM or slow IV (over 1-10 min)

Paediatric dose:

< 1 year: 25 mg IM or slow IV (over 1-10 min)

1-5 years: 50 mg IM or slow IV (over 1-10 min)

6-12 years: 100 mg IM or slow IV (over 1-10 min)

> 12 years: 130 mg IM or slow IV (over 1-10 min)

Contraindications:

Nil

Side effects:

CCF, hypertension, abdominal distension, vertigo, headache, nausea, malaise, hiccups

Additional information:

IM injection should avoid the deltoid area

Dosage should not be less than 25 mg

For infusion mix with 100 mL NaCl

Notes

Ibuprofen

Indications:

Mild to moderate pain

Adult dose:

400 mg PO

Paediatric dose:

10 mg/Kg PO

(See calculations for 'Brufen Syrup' suspension below)

Contraindications:

Other NSAIDs given in previous 8 hours, patients under 3 months, asthma exacerbated by Aspirin & pregnancy

Side effects:

Skin rashes, gastrointestinal intolerance and bleeding

Additional information:

Ibuprofen is not contraindicated if administered in previous 6 hours, provided the dose is adjusted downward by the amount given by other sources, resulting in a Max of 10 mg/Kg.

Ibuprofen (Brufen Syrup) calculations

Paediatric dose:
10 mg/Kg

Ratio:
100 mg/5 mL

Age	Weight	mg	mL
Neonate	Contraindicated		
6 months	6 Kg	60 mg	3 mL
1 year	10 Kg	100 mg	5 mL
2 years	13 Kg	130 mg	6.5 mL
3 years	16 Kg	160 mg	8 mL
4 years	19 Kg	190 mg	9.5 mL
5 years	22 Kg	220 mg	11 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

Ipratropium Bromide

Indications:

Acute severe asthma not responding to initial two Salbutamol doses, exacerbation of COPD

Adult dose:

0.5 mg NEB

Paediatric dose:

0.25 mg NEB

Contraindications:

KSAR

Side effects:

Transient dry mouth, blurred vision, tachycardia, headache

Lidocaine

Indications:

Substitute for Amiodarone when not available

Adult dose:

1-1.5 mg/kg IV/IO (100 mg bolus)

Paediatric dose:

Not indicated

Contraindications:

Nil

Side effects:

Drowsiness, dizziness, twitching, paraesthesia, convulsions, bradycardia, respiratory depression

Additional information:

Lidocaine may not be administered if Amiodarone has been administered

Lorazepam
Indications: Combative with hallucinations or paranoia & risk to self or others
Adult dose: 2 mg PO
Paediatric dose: Not indicated
Contraindications: History of sensitivity to benzodiazepines, severe hepatic or pulmonary insufficiency, suspected significant alcohol and or sedative ingested
Side effects: Drowsiness, confusion, headache, dizziness, blurred vision, nausea & vomiting

Magnesium Sulphate Injection

Indications:

Torsade de pointes, persistent bronchospasm

Adult dose:

Torsade de pointes: 2 g IV/IO infusion over 15 minutes

Persistent bronchospasm: 1.5 g IV/IO infusion over 20 minutes

Paediatric dose:

Not indicated

Contraindications:

KSAR

Side effects:

Decreased deep tendon reflexes, respiratory depression, bradycardia, hypothermia

Additional information:

Dilute in 100 mL NaCl for infusion

Midazolam Solution

Indications:

Seizures, psychostimulant OD, hallucinations or paranoia

Adult dose:

Seizures: 2.5 mg IV or 5 mg IM or 10 mg buccal or 5 mg intranasal (repeat x one prn)

Psychostimulant OD (AP only): 2.5 IV or 5 mg IM (repeat x two prn)

Hallucinations or paranoia (AP only): 5 mg IV/IM

Paediatric dose:

Seizure: 0.5 mg/Kg buccal or 0.2 mg/Kg intranasal or 0.1 mg/Kg IV/IO (repeat x one prn)

Contraindications:

Shock, depressed vital signs or alcohol related ALoC

Side effects:

Respiratory depression, headache, hypotension, drowsiness

Additional information:

Midazolam IV (AP only) should be titrated to effect. Caution with concentration when calculating dose. Dilute to 1 mg/1mL for adult IV administration. For MAD use, add 0.1 mL for dead space to volume

Do not exceed adult dose for paediatrics

Midazolam Solution calculations

Paediatric dose:
0.5 mg/Kg Buccal

Concentration:
50 mg/5 mL

Age	Weight	mg	mL
Neonate	3.5 Kg	1.75 mg	0.2 mL
6 months	6 Kg	3.0 mg	0.3 mL
1 year	10 Kg	5.0 mg	0.5 mL
2 years	13 Kg	6.5 mg	0.7 mL
3 years	16 Kg	8.0 mg	0.8 mL
4 years	19 Kg	9.5 mg	1.0 mL
5 years	22 Kg	10.0 mg	1.0 mL
6 years	25 Kg	10.0 mg	1.0 mL
7 years	28 Kg	10.0 mg	1.0 mL
8 years	31 Kg	10.0 mg	1.0 mL
9 years	34 Kg	10.0 mg	1.0 mL
10 years	37 Kg	10.0 mg	1.0 mL
11 years	40 Kg	10.0 mg	1.0 mL
12 years	43 Kg	10.0 mg	1.0 mL
13 years	46 Kg	10.0 mg	1.0 mL

Midazolam Solution calculations

Paediatric dose:
0.2 mg/Kg Intranasal (add 0.1 mL)

Concentration:
10 mg/2 mL

Age	Weight	mg	mL (+ 0.1)
Neonate	3.5 Kg	0.7 mg	0.2 mL
6 months	6 Kg	1.2 mg	0.3 mL
1 year	10 Kg	2.0 mg	0.5 mL
2 years	13 Kg	2.6 mg	0.6 mL
3 years	16 Kg	3.2 mg	0.7 mL
4 years	19 Kg	3.8 mg	0.9 mL
5 years	22 Kg	4.4 mg	1.0 mL
6 years	25 Kg	5.0 mg	1.1 mL
7 years	28 Kg	5.0 mg	1.1 mL
8 years	31 Kg	5.0 mg	1.1 mL
9 years	34 Kg	5.0 mg	1.1 mL
10 years	37 Kg	5.0 mg	1.1 mL
11 years	40 Kg	5.0 mg	1.1 mL
12 years	43 Kg	5.0 mg	1.1 mL
13 years	46 Kg	5.0 mg	1.1 mL

Midazolam Solution calculations

Paediatric dose:
0.1 mg/Kg IV/IO

Concentration:
10 mg/2 mL

Age	Weight	mg	mL
Neonate	3.5 Kg	0.4 mg	0.1 mL
6 months	6 Kg	0.6 mg	0.1 mL
1 year	10 Kg	1.0 mg	0.2 mL
2 years	13 Kg	1.3 mg	0.3 mL
3 years	16 Kg	1.6 mg	0.3 mL
4 years	19 Kg	1.9 mg	0.4 mL
5 years	22 Kg	2.2 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

Morphine

Indications:

Severe pain

Adult dose:

2 mg IV/IO (repeat at not < 2 min intervals prn to Max 10 mg, or for musculoskeletal pain Max 16 mg) (dilute in 9 mL NaCl)

Up to 10 mg IM (if not cardiac chest pain and no IV access)

Paediatric dose:

0.3 mg/Kg PO (max 10 mg)

0.05 mg/Kg IV/IO (repeat at not < 2 min intervals prn to Max 0.1 mg/Kg) (dilute in 9 mL NaCl)

Contraindications:

PO < 1 year, brain injury, labour pains, acute respiratory depression, systolic BP < 90 mmHg, migraine

Side effects:

Respiratory depression, drowsiness, nausea & vomiting, constipation

Additional information:

Use with extreme caution particularly with elderly and young
Controlled under Misuse of Drugs Act

Morphine calculations (dilute in 9 mL NaCl)

Paediatric dose:
0.05 mg/Kg IV/IO

Concentration:
10 mg/10 mL

Age	Weight	mg	Dose
Neonate	3.5 Kg	0.18 mg	0.2 mL
6 months	6 Kg	0.30 mg	0.3 mL
1 year	10 Kg	0.50 mg	0.5 mL
2 years	13 Kg	0.65 mg	0.7 mL
3 years	16 Kg	0.80 mg	0.8 mL
4 years	19 Kg	0.95 mg	1.0 mL
5 years	22 Kg	1.10 mg	1.1 mL
6 years	25 Kg	1.25 mg	1.3 mL
7 years	28 Kg	1.40 mg	1.4 mL
8 years	31 Kg	1.55 mg	1.6 mL
9 years	34 Kg	1.70 mg	1.7 mL
10 years	37 Kg	1.85 mg	1.9 mL
11 years	40 Kg	2.00 mg	2.0 mL
12 years	43 Kg	2.00 mg	2.0 mL
13 years	46 Kg	2.00 mg	2.0 mL

Morphine calculations (Oromorph)

Paediatric dose:
0.3 mg/Kg PO

Concentration:
10 mg/5 mL

Age	Weight	mg	Dose
Neonate	Contraindicated		
6 months	Contraindicated		
1 year	10 Kg	3.0 mg	1.5 mL
2 years	13 Kg	3.9 mg	2.0 mL
3 years	16 Kg	4.8 mg	2.4 mL
4 years	19 Kg	5.7 mg	2.9 mL
5 years	22 Kg	6.6 mg	3.3 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	10.0 mg	5.0 mL
10 years	37 Kg	10.0 mg	5.0 mL
11 years	40 Kg	10.0 mg	5.0 mL
12 years	43 Kg	10.0 mg	5.0 mL
13 years	46 Kg	10.0 mg	5.0 mL

Notes

Naloxone

Indications:

Respiratory rate < 10 secondary to known or suspected narcotic overdose

Adult dose:

0.4 mg IV/IO/IM or SC (repeat after 3 min prn to Max 2 mg)

Paramedic: repeat x one prn

Paediatric dose:

0.01 mg/Kg IV/IO/IM or SC (repeat prn to maintain opioid reversal to Max 0.1 mg/Kg or 2 mg)

Paramedic: repeat x one prn

Contraindications:

KSAR

Side effects:

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

Additional information:

Use with caution in pregnancy, prepare to deal with aggressive patients. First adult dose administered IM for IVDUs

Do not exceed adult dose for paediatrics

Naloxone calculations

Paediatric dose:

0.01 mg/Kg IV/IO

Concentration:

0.4 mg/1 mL

Age	Weight	mg	Dose	Max
Neonate	3.5 Kg	0.04 mg	0.1 mL	0.9 mL
6 months	6 Kg	0.06 mg	0.2 mL	1.5 mL
1 year	10 Kg	0.1 mg	0.3 mL	2.5 mL
2 years	13 Kg	0.13 mg	0.3 mL	3.3 mL
3 years	16 Kg	0.16 mg	0.4 mL	4.0 mL
4 years	19 Kg	0.19 mg	0.5 mL	4.8 mL
5 years	22 Kg	0.22 mg	0.6 mL	5.0 mL
6 years	25 Kg	0.25 mg	0.6 mL	5.0 mL
7 years	28 Kg	0.28 mg	0.7 mL	5.0 mL
8 years	31 Kg	0.31 mg	0.8 mL	5.0 mL
9 years	34 Kg	0.34 mg	0.9 mL	5.0 mL
10 years	37 Kg	0.37 mg	0.9 mL	5.0 mL
11 years	40 Kg	0.40 mg	1.0 mL	5.0 mL
12 years	43 Kg	0.40 mg	1.0 mL	5.0 mL
13 years	46 Kg	0.40 mg	1.0 mL	5.0 mL

Nifedipine
Indications: Prolapsed cord
Adult dose: 20 mg PO
Paediatric dose: Not indicated
Contraindications: Hypotension, KSAR
Side effects: Hypotension, headache, bradycardia, nausea & vomiting
Additional information: Close monitoring of maternal pulse & BP is required and continuous foetal monitoring should be carried out if possible

Nitrous Oxide 50% & Oxygen 50%

Indications:

Pain relief

Adult dose:

Self-administered until pain relieved

Paediatric dose:

Self-administered until pain relieved

Contraindications:

ALoC, chest injury/pneumothorax, shock, recent scuba dive, decompression sickness, intestinal obstruction, inhalation injury, carbon monoxide poisoning, KSAR

Side effects:

Disinhibition, decreased levels of consciousness, light headedness

Additional information:

Advanced Paramedics may use discretion with minor chest injuries. Has addictive property

Notes

Notes

Ondansetron
Indications: Management, prevention and treatment of nausea & vomiting
Adult dose: 4 mg slow IV
Paediatric dose: 0.1 mg/Kg IV slowly to Max of 4 mg
Contraindications: KSAR
Side effects: Headache, sensation of warmth, flushing, hiccups

Ondansetron calculations

Paediatric dose:
0.1 mg/Kg

Concentration:
4 mg/2 mL

Age	Weight	mg	mL
Neonate	3.5 Kg	0.35 mg	0.2 mL
6 months	6 Kg	0.6 mg	0.3 mL
1 year	10 Kg	1.0 mg	0.5 mL
2 years	13 Kg	1.3 mg	0.7 mL
3 years	16 Kg	1.6 mg	0.8 mL
4 years	19 Kg	1.9 mg	1.0 mL
5 years	22 Kg	2.2 mg	1.1 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	4.0 mg	2.0 mL
12 years	43 Kg	4.0 mg	2.0 mL
13 years	46 Kg	4.0 mg	2.0 mL

Oxygen

Indications:

Absence/inadequate ventilation following an acute medical or traumatic event.

SpO_2 < 94% adults and < 96% paediatrics, SpO_2 < 92% for patients with acute exacerbation of COPD

Adult dose:

Cardiac & respiratory arrest: 100% via BVM

Life threats identified: 100% until SpO_2 then titrate to 94% - 98%

Acute exacerbation of COPD: titrate to SpO_2 92% or as specified on COPD oxygen alert card

All other conditions titrate to SpO_2 94% - 98%

Paediatric dose:

Cardiac & respiratory arrest: 100% via BVM

Life threats identified: 100% until SpO_2 then titrate to 96% - 98%

All other conditions titrate to SpO_2 96% - 98%

Contraindications:

Paraquat poisoning & Bleomycin lung injury

Side effects:

Prolonged O_2 with COPD patients may reduce ventilation stimulus

Additional information:

Record Oxygen administration on PCR, SpO_2 readings should specify if on air or supplementary Oxygen

Notes

Paracetamol

Indications:

Pyrexia following seizure for paediatric patients

Minor and/or moderate pain for adult and paediatric patients

Adult dose:

1 g PO

Paediatric dose:

20 mg/Kg PO

< 1 year	60 mg PR (AP only)
1 to 3 years	180 mg PR (AP only)
4 to 8 years	360 mg PR (AP only)

Contraindications:

KSAR

Side effects:

Nil

Additional information:

Consult with parent/guardian in relation to medications prior to arrival on scene. For PR use be aware of patient's modesty, should be administered in the presence of second person. APs may administer paracetamol for pyrexial patients with history of febrile convulsions.

Paracetamol is not contraindicated if administered in previous 4 hours, provided the dose is adjusted downward by the amount given by other sources, resulting in a max of 20 mg/Kg

Paracetamol (Calpol) calculations

Paediatric dose:
20 mg/Kg

Concentration:
120 mg/5 mL

Age	Weight	mg	mL
Neonate	3.5 Kg	70 mg	2.9 mL
6 months	6 Kg	120 mg	5.0 mL
1 year	10 Kg	200 mg	8.3 mL
2 years	13 Kg	260 mg	10.8 mL
3 years	16 Kg	320 mg	13.3 mL
4 years	19 Kg	380 mg	15.8 mL
5 years	22 Kg	440 mg	18.3 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

Salbutamol

Indications:

Bronchospasm

Exacerbation of COPD

Respiratory distress following submersion incident

Adult dose:

5 mg NEB

Repeat at 5 min prn (AP x 3 & P x 1)

EMT: 0.1 metered aerosol spray x 2

Paediatric dose:

< 5 years - 2.5 mg NEB

≥ 5 years - 5 mg NEB

Repeat at 5 min prn (AP x 3 & P x 1)

EMT: 0.1 metered aerosol spray x 2

Contraindications:

KSAR

Side effects:

Tachycardia

Tremors

Tachyarrthymias

Additional information:

Volumizer should be used in conjunction with aerosol

For acute exacerbation of COPD limit to 6 minutes if Oxygen-driven nebuliser is used

Sodium Bicarbonate

Indications:

Wide complex QRS arrhythmias and or seizures following Tricyclic overdose. Cardiac arrest following Tricyclic overdose

Adult dose:

1 mEq/Kg (1 mL/Kg 8.4% solution)

Paediatric dose:

Not indicated

Contraindications:

KSAR

Side effects:

Nil

Additional information:

Anti-cholinergic signs & symptoms: dry eyes, dilated pupils, dry mouth, dry flushed skin, urinary retention, altered levels of consciousness

Sodium Chloride 0.9%

Indications:

IV/IO fluid for pre-hospital emergency care

Adult dose:

Anaphylaxis:	1,000 mL infusion (repeat x one)
Burns:	> 10% TBSA consider 500 mL infusion > 25% TBSA and 1 hour from time of incident to ED: 1,000 mL infusion
Crush Injury:	20 mL/Kg infusion
Decompression illness:	500 mL infusion
Glycaemic emergency:	1,000 mL infusion
Hypothermia:	250 mL infusion (at 40°C) Max 1 L
ROSC:	500 mL infusion (at 4°C approx) and continuous infusion to maintain Sys BP > 90 mmHg
Shock:	500 mL infusion, repeat in aliquots of 250 mL to maintain Sys BP of: • 90 to 100 mmHg (Non trauma or head injury GCS > 8) • 120 mmHg (head injury GCS ≤ 8)

Paediatric dose:

Anaphylaxis, crush injury, glycaemic emergency, hypothermia (at 40°C), ROSC (if persistent poor perfusion) and shock: 20 mL/Kg infusion

Haemorrhagic shock and neonate: 10 mL/Kg infusion

Additional information:

Paramedics maintain infusion once commenced

Sodium Chloride 0.9% calculations

Paediatric dose:
20 mL/Kg

Haemorrhagic shock & neonate:
10 mL/Kg

Age	Weight	10 mL/Kg	20 mL/Kg
Neonate	3.5 Kg	35 mL	Not indicated
6 months	6 Kg	60 mL	120 mL
1 year	10 Kg	100 mL	200 mL
2 years	13 Kg	130 mL	260 mL
3 years	16 Kg	160 mL	320 mL
4 years	19 Kg	190 mL	380 mL
5 years	22 Kg	220 mL	440 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

Syntometrine
Indications: Control of post-partum haemorrhage
Adult dose: 1 mL IM
Paediatric dose: Not indicated
Contraindications: Severe kidney, liver or cardiac dysfunction, sepsis, KSAR
Side effects: Nausea & vomiting, abdominal pain, headache, dizziness
Additional information: Ensure that a second foetus is not in the uterus prior to administration

Notes

Tenecteplase

Indications:

1. Patient is conscious, coherent & understands therapy
2. Patient consent obtained
3. < 75 years old (medical practitioner discretion)
4. MI symptoms for ≤ 3 hours
5. Confirmed STEMI: ST elevation in two or more contiguous leads (2 mm in V2 & V3 or 1 mm in any other leads) or new onset of Left Bundle Branch Block (LBBB)
6. Time to PPCI centre > 90 min of STEMI confirmation
7. No contraindications present

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)

Special instructions

Following 12 lead ECG interpretation, if anticipated time from STEMI recognition to handover to clinical staff in hospital with thrombolysis capabilities is

1 < 20 min—do not thrombolyse, pre-alert ED

2 > 30 min—thrombolyse, then transport to PPCI centre

3 20-30 min—thrombolyse if considered that local circumstances may delay transport (practitioner discretion), then transport to PPCI centre

(cont.)

Tenecteplase

Contraindications:

Haemorrhagic stroke or stroke of unknown origin at any time
Ischemic stroke in previous 6 months
Central nervous system damage or neoplasm
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
TIA 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

Paediatric dose:

Not indicated

Side effects:

Haemorrhage at injection site. Ecchymoses are observed commonly but usually do not require any specific action
Stroke and other serious bleeding episodes

Commonly prescribed medications

Brand name	Generic name	Indication
Bata-adalat	Atenolol	Hypertension
Betnovate cream	Betamethasone	Inflammatory skin disorder
Bisocor	Bisoprolol	Angina / heart failure
Citalopram	Citalopram	Depression
Clarithromycin Ranbaxy	Clarithromycin	Infection (no penicillin)
Centyl K	Bendroflumethazide	Hypertension
Coversyl	Perindopril	Anti-hypertensive
Cozaar	Lozartan Potassium	Heart failure
Crestor	Rosuvastatin	Hypercholesterolemia
Deltacortril	Prednisolone	Suppression of inflammatory disorders
Diamicron	Gliclazide	Diabetes
Diovan	Valsartan	Heart failure
Dona	Glucosamine	Joint pain
Fastum gel	Ketoprofen	Osteoarthritis
Flagyl	Metronidazole	Anaerobic bacteria
Glucophage	Metformin Hydrochloride	Diabetes Mellitus
Istin	Amlodipine	Hypertension

Commonly prescribed medications (cont.)

Brand name	Generic name	Indication
Lamictal	Lamotrigine	Seizure control
Lexapro	Escitalopram	Depression
Lipitor	Atorvastatin	Hypercholesterolemia
Lipostat	Pravastatin Sodium	Hyperlipidaemias
Losamel	Omeprazole	Duodenal ulcer
Motilium	Demperidone	Anti-emetic
Nexium	Esomeprazole	Gastric over secretion of hydrochloric acid
Omnexel	Tamsulosin	Benign prostatic hypertrophy
Serc	Betahistine	Vertigo, tinnitus
Stilnoct	Zolpidem	Insomnia
Tritrace	Ramipril	Hypertension
Vibramycin	Doxycycline	Infection
Xanax	Alprazolam	Anxiety
Zimovane	Zopiclone	Insomnia
Zoton	Lansoprazole	Gastric over secretion of hydrochloric acid
Zydol	Tramadol	Pain

Hospital contact numbers & PCR codes

Hospital	Main Line	ED	PCR Code
Armagh			
Craigavon Area Hospital	(048) 38334444	(048) 38332006	CAH
Cavan			
Cavan General Hospital	(049) 4361399	(049) 4376607	CGH
Clare			
Mid Western Regional Hospital - Ennis	(065) 6824464	(065) 6863121	ERH
Cork			
Bantry General Hospital	(027) 50133	(027) 52929	BGH
Cork University Hospital	(021) 4922000	(021) 4920232	CUH
Cork University Maternity Hospital	(021) 4920500	(021) 4920598	CUMH
Mallow General Hospital	(022) 21251	(022) 30360	MLGH
Mercy Hospital Cork	(021) 4271971	(021) 4935241	MUH
South Infirmary Victoria Hospital Cork	(021) 4926100	(021) 4926177	SIVH

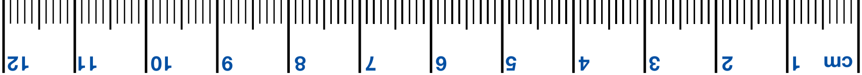
Hospital	Main Line	ED	PCR Code
Derry			
Athnagelvin Hospital	(048) 71345171	(048) 71343680	AHD
Donegal			
Letterkenny General Hospital	(074) 9125888	(074) 9123596	LGH
Down			
Daisy Hill Hospital, Newry	(048) 30835000	(048) 30832406	DHH
Dublin			
AMNCH (Tallaght) – Adult	(01) 4142000	(01) 4143501	AMNA
AMNCH (Tallaght) – Paediatric	(01) 4142000	(01) 4143558	AMNC
Beaumont Hospital	(01) 8093000	(01) 8092714	BHD
Connolly Hospital Blanchardstown	(01) 8213844	(01) 6466250	CHD
Coombe Women's Hospital	(01) 4085200	n/a	CWH
Mater Misericordiae Hospital	(01) 8301445	(01) 8032651	MMH
National Children's Hospital (Temple St)	(01) 8784200	(01) 8784218	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) 8730700	n/a	RMH
Royal Victoria Eye and Ear Hospital	(01) 6644600	(01) 6343648	RVH
St Columcilles, Loughlinstown	(01) 2825800	(01) 2115279	SCH
St James's Hospital	(01) 4103000	(01) 4162775	SJH
St Michael's, Dun Laoghaire	(01) 2806901	(01) 6639828	SMH
St Vincent's University Hospital	(01) 2214000	(01) 2214358	SVH
Fermanagh			
Erne Hospital, Enniskillen	(048) 66382000	(048) 66382337	EHE
Galway			
Portiuncula Hospital, Ballinasloe	(0909) 648200	(0909) 648248	PHB

Hospital	Main Line	ED	PCR Code
Galway (cont.)			
University Hospital Galway	(091) 524222	(091) 544556	UHG
Kerry			
Kerry General	(066) 7184000	(066) 7184395	KGH
Kildare			
Naas General Hospital	(045) 897221	(045) 849909	NGH
Kilkenny			
St Luke's General Hospital	(056) 7751133	(056) 7785403	SLK
Laois			
Midland Regional Hospital, Portlaoise	(057) 8621364	(057) 8696028	PMR
Limerick			
Limerick Maternity Hospital (St Munchin's)	(061) 327455	n/a	LRMH
Midwestern Regional Hospital	(061) 482219	(061) 482120	LRH
St John's Hospital Limerick	(061) 462222	(061) 462130	SJHL

Hospital	Main Line	ED	PCR Code
Louth			
Our Lady of Lourdes Hospital	(041) 9837601	(041) 9832321	OLOL
Mayo			
Mayo General Hospital	(094) 9021733	(094) 9042377	MOGH
Offaly			
Tullamore General Hospital	(057) 9321501	(057) 9328021	TMR
Sligo			
Sligo General Hospital	(071) 9171111	(071) 9174506	SGH
Tipperary			
Midwestern Regional Hospital, Nenagh	(067) 31491	n/a	NRH
South Tipperary General Hospital, Clonmel	(052) 6121900	(052) 6177042	STGH

Hospital	Main Line	ED	PCR Code
Waterford			
Waterford Regional Hospital	(051) 848000	(051) 842445	WRH
Westmeath			
Midland Regional Hospital - Mullingar	(044) 9340221	(044) 9394121	MMR
Wexford			
Wexford General Hospital	(053) 9153000	(053) 9153313	WGH



Ruler

Pupil Sizes