





MERIT and MAA aide memoir

September 2017 – version 3

AIDE MEMOIRE

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Using the aide memoire

This aide memoire is designed to be used by clinicians of Midlands Air Ambulance and West Midlands Ambulance Service MERIT. Reflecting current best practise, standard operating procedures and guidelines.

It has been compiled by staff from the two services updating the original version and is correct at the time of going to press.

It has adapted from the following:

- UK Resuscitation Guidelines 2015
- UK Ambulance Services Clinical Practise Guidelines 2016
- WMAS 2017 Patient Group Directives
- WMAS clinical guidelines

While every effort has been made to ensure information contained is correct it does not replace current policies or guidelines. Please refer to the appropriate resources for full information.

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USING THE AIDE MEMOIRE

1 - ADULT ADVANCED LIFE SUPPORT



During CPR

- Ensure high quality chest compressions
- Minimise interruptions to compressions
- Give oxygen
- Use wav eform capnography
- Continuous compressions when advanced airway in place
- Vascular access (intravenous or intraos seous)
- Give adrenaline every 3-5 min
- Give amiodarone after 3 shocks

Treat Reversible Causes

- Hypoxia
- Hypovolaemia
- Hypo-/hyperkalaemia/metabolic
- Hypothermia
- Throm bos is c oronary or pulmonary
- Tension pneumothorax
- Tamponade cardiac
- Toxins

Consider

- Ultrasound imaging
- Mechanical chest compressions to facilitate transfer/treatment
- Coronary anglography and percutaneous coronary intervention
- Extracorporeal CPR

1 – ADULT ADVANCED LIFE SUPPORT

2 – PAEDIATRIC ADVANCED LIFE SUPPORT



During CPR

- Ensure high-quality CPR: rate, depth, recoil
- Plan actions before interrupting CPR
- Give oxygen ٠
- Vascular access (intravenous, intraosseous)
- Give adrenaline every 3-5 min
- Consider advanced airway and capnography
- Continuous chest compressions when advanced airway in place
- Correct reversible causes
- Consider am iodarone after 3 and 5 shocks

Reversible Causes

- Hypoxia ٠ Hypov olaemia •
- Hyper/hypokalaemia, metabolic
- ٠
- Hypothermia ٠
- Throm bos is (coronary or pulmonary) ٠
- Tension pneumothorax
- Tamponade (cardiac) ٠
- Toxic/therapeutic disturbances

2 – PAEDIATRIC ADVANCED LIFE SUPPORT

3 – NEONATAL ADVANCED LIFE SUPPORT



3 – NEONATAL ADVANCED LIFE SUPPORT

BURNS RULES OF 9



4 – BURNS RULES OF NINES

BURNS REFERRAL

Consider referral with the following, always consult RTD for latest advice:

Adults Partial Thickness Burns > 3	3% TBSA	Partial ⁻	Paediatrics Thickness Burns > 2% TBSA
 Any patient regardless of % TSBA pro- Inhalation injury Full thickness > 1% Burns to Face/Neck/Hands/ Feet/ Burns over/affecting joint Electrical burns 	esenting with follow	 ving: Chemical burns Suspect NAI Burn + significar Circumferential 	nt co-morbidities burn to trunk or limbs
Burns Centres No Restrictions	Burn Adults <40%	s Unit /Paeds <20%	Burns Facilities Adults <10%/Paeds <5%
UHB (adults + MTC)	Stoke Mandeville	e (adult & paeds)	UHCW (adults & paeds + adult MTC)
Birmingham Childrens (paeds + MTC)	Queens, Notting paeds + MTC)	ham (adults &	Leicester Royal Infirmary (adults &
Chelsea & Westminster (adults)			paeds)
St Andrews, Chelmsford (adults & Paeds)			

BURNS FLUIDS:

Fluid replacement but DO NOT delay transport:

Parkland Formula:

- •4ml x TBSA (%) x body weight (kg)
- 50% given in first eight hours
- 50% given in next 16 hours

5 – BURNS REFERRAL AND FLUID MANAGEMENT

PRE-HOSPITAL TRIAGE CRITERIA FOR BURNS PATIENTS DESTINATION – PAEDS

Children (<16)



6 – BURNS TRIAGE - PAEDS

PRE-HOSPITAL TRIAGE CIRTERIA FOR BURNS PATIENTS DESTINATION – ADULTS

Adults (≥16)



7 – BURNS TRIAGE - ADULTS

TRANSCUTANEOUS PACING – ZOLL

- Attach limb leads & defibrillation pads
- Press PACER
- Set pacer MODE to DEMAND

Pacer Settings			
Mode	Demand		
Rate	60		
Output	70		
Start	Pacer		
Turn Pacer Off			

- Set PACER RATE to 10 20ppm above intrinsic rate or 100ppm if no intrinsic rate
- Turn on pacer
- Increase PACER OUTPUT until electrical capture occurs

PACING		
Rate	Output	Mode
80 _{ppm}	95 mA	Demand

- Ensure that mechanical capture is also occurring and increase output if required.
- Optimal threshold is usually determined by setting output at about 10mA above the lowest capture output.
- Paediatric pacing set as above but using paediatric hands-free pads

8 – TRANSCUTANEOUS PACING

<u>CPAP</u>

Continuous Positive Airway Pressure (CPAP) indications:

 Hypoxic but not exhausted pts (cardiogenic pulmonary oedema, exacerbation of COPD, pneumonia & adult respiratory distress syndrome)

Contraindications:

- Trauma, partially facial & skull trauma (inc base skull # & burns), Pneumothorax & Elevated ICP
- Loss of airway protection (reduced LOC)
- Hypotension

Based on PARApac Plus 310:

- Ensure pt has full monitoring (EtCo₂ may be difficult with CPAP mask)
- Gain consent and explain procedure to Pt
- Connect mask & circuit to PARApac and rotate dial to II (FLOW)
- Turn CPAP dial from 0.5 to 35 ensure flow increases through mask
- Set to a low flow (<5 L/min) and slowly introduce mask to pt
- Secure mask and increase flow until pressure gauge reads 5cmH₂O on expiration
- Carefully monitor pt, improvement should be with 5-10 min & watch for gastric inflation
- If no clinical improvement increase the flow to achieve a CPAP level of up to 10cmH₂O

NOTE: CPAP may reduce cardiac performance (causing drop in BP) on pts not suffering from pulmonary oedema

NOTE: Ensure adequate supply of O2 (a small 1L cylinder could last <8min with higher CPAP settings)



10 – SEPSIS TOOL

SEPSIS tool



10 – SEPSIS TOOL

KETAMINE PGD

Required:

CCP & another ALS airway provider Full monitoring inc. ETCO₂ Suction Airway roll inc. difficult airway pouch BVM Quiet environment

Adults <60 years who are haemodynamically stable	Adults ≥60 years / debilitated or chronically ill are haemodynamically stable	Children >3 months old
IV/IO Analgesia: 0.2mg/kg aliquots. This equates to 10-20mg. Procedural sedation:	IV/IO Analgesia: 10mg aliquots	IV/IO Analgesia: 0.2mg/kg aliquots
0.5-1mg/kg aliquots. Give an initial dose of 0.2mg/kg to judge sensitivity to the drug	Procedural sedation: 0.5mg/kg aliquots. Give an initial dose of 10mg to judge sensitivity to the drug	Procedural sedation: 1.5-2mg/kg given over 30 seconds. Repeated doses at 0.5-1mg/kg may be required after 5-10 mins. Larger doses are required in younger children.

Indications:

- Analgesia in children instead of physical restraint for short duration painful procedures where other distraction/communication techniques have failed or are not appropriate.
- Sedation and Analgesia to facilitate extrication in adults and children who are not trapped.
- Analgesia in adults for somatic pain where morphine has proven ineffective
- A minimum of 2 staff competent in advanced airway management skills (paramedic or above) must be available.

Cautions:

Age 6-12 months Active URTI/ pulmonary disease Thyroid disease CNS mass/ hydrocephalus Airway instability/burns CVS hypertension Porphyria

Contraindications:

Acute psychosis Adverse reaction

Age < 6 months

11 – KETAMINE PGD

MIDAZOLAM PGD

Required:

CCP & another ALS airway provider Full monitoring inc. ETCO₂ Suction Airway roll inc. difficult airway pouch BVM Quiet environment

Adults <60 years who are haemodynamically stable	Adults ≥60 years / debilitated or chronically ill are haemodynamically stable	Children
IV/IO Initial dose: 1-2 mg Titration doses: 1 mg Total dose: <10mg	IV/IO Initial dose: 0.5-1 mg Titration doses: 0.5-1 mg Total dose: <5 mg	IV/IO in patients 6 months-5 years Initial dose: 0.05-0.1 mg/kg Total dose: <6 mg IV/IO in patients 6-12 years Initial dose: 0.025-0.05 mg/kg Total dose: <10 mg IV/IO in patients 12-16 years Treat as adults

Indications:

- For the purposes of sedation to manage restlessness and agitation to adequately gain control of oxygenation and ventilation. This should only be to the level of moderate sedation. This may be extended to deep sedation, for post ROSC patients only, provided suitable airway management is in place.
- For the treatment of emergence phenomenon after administration of Ketamine. Not to be used to prevent this phenomenon.
- May be used for the management of agitation not related to hypoxia (minimum to moderate sedation) but only after consultation with senior cover.

Cautions:

- Respiratory depression
- CNS depressants
- Elderly or Haemodynamically unstable
- Agitation due to pain

- Personality disorders
- Antibacterials/Antifungals/Antivirals or Antihypertensives
- Controlled sodium diet

Contraindications:

- Known hypersensitivity
- Age < 6 months

12 – MIDAZOLAM PGD

INTRANASAL ANALGESIA/SEDATION

NOTE: Use divided doses 50% into each nostril, aim MAD upwards and slightly laterally towards the tip of the ipsilateral ear and briskly deliver.

NOTE: MAD has 0.1ml of dead space, **this is added** to the drug caculations below.

FENTANYL

Age	Est Weight (kg)	Dose Delivered (mcg)	Total volume (mls) of 50mcg/ml Fentanyl to adminster – 1.5mcg/kg
6 months	7	10.5	0.3
1 year	10	15	0.4
5 years	18	27	0.6
10 years	37	55.5	1.2
Adult	70	105	2.2
Large Adult	100	150	3.1
	Re	neat at 15min i	nterval

KETAMINE

Age	Est Weight (kg)	Dose Delivered (mg)	Total volume (mls) of 10mg/ml Ketamine to adminster – 0.5mg/kg
6 months	7	3.5	0.5
1 year	10	5	0.6
5 years	18	9	1.0
10 years	37	18.5	2.0
Adult	70	35	3.6
Large Adult	100	50	5.1
Repeat at 15min intervals			

MIDAZOLAM

Up to 5 yrs only as vol too large – **0.2mg / kg** repeat 5 min (max cumulative 10mg dose)

13 – INTRANASAL ANALGESIA/SEDATION

Principles for Joint Working

Co-locate

Co-locate with commanders as soon as practicably possible at a single, safe and easily identified location near to the scene.

Communicate

Communicate clearly using plain English

Co-ordinate

Co-ordinate by agreeing the lead service. Identify priorities, resources and capabilities for an effective response, including the timing of further meetings

Jointly understand risk

Jointly understand risk by sharing information about the likelihood and potential impact of threats and hazards to agree potential control measures

Shared Situational Awareness

Shared Situational Awareness established by using METHANE and the Joint Decision Model

14 – MAJOR INCIDENTS JOINT WORKING

Joint Decision Model



15 – MAJOR INCIDENTS JOINT DECISION TOOL

Shared Situational Awareness

In the initial stages, pass information between emergency responders and Control Rooms using the METHANE mnemonic.



16 – MAJOR INCIDENTS METHANE

ACTION CARD 4 – Ambulance Incident Commander

AMBULANCE INCIDENT COMMANDER

OVERALL ROLE: Responsibility for all activity of ambulance personnel at the scene in conjunction with a Medical Incident Officer and has responsibility for effective use of clinical resources at the scene.

ROLE FILLED BY: Attendant of First Crew on Scene/ASO (Initially) then relived by On Call Tactical Commander

LOC/	ATION:	Scene (or near to scene)			
CALL	SIGN:	Silver Commander			
NB: I	n the even	t of escalation to a multi-pe	oint incide	nt each scene will be treate	ed as a
sepa	rate incide	nt, each with its own Ambu	lance Inc	ident Commander coordina	ted
throu	igh Strateg	gic Control.			
Ser		ACT	IONS		Time
1	Don the a	ppropriate high visibility jack	et marked	Ambulance Incident	
	Comman	der' and helmet			
2	Commen	ce Personal LOG.			
3	Change to	o major incident talk group as	directed b	by ICD and utilise ARP	
	earpiece i	if available			
4	Ensure ex	xtra handset available to mon	itor Multi A	gency Talk Group	
5	Receive b	priefing from the current Amb	ulance Inci	dent Commander. Assume	
	command	of all NHS resources.			
5	Provide u	pdated METHANE to RCC –	Remembe	er to keep messages	
	• A0	ccurate			
	• Br	ief			
	• CI	ear			
6	If suspected or confirmed CBRN incident Complete Tactical CBRN				
	Assessment and report assessment to RCC.				
7	Management of the scene can be achieved by following the process below				
	(CSCATIT) Command and Control				
		Safety			
		Communication			
		Triage			
		Treatment			
		Transport			
8	Establish	Ambulance Tactical Comma	nd Cell to i	nclude:	
Ŭ	• An	bulance Incident Commande	ar	liologo.	
	• Me	dical Incident Officer (See A	ction Card	- Medical Incident Officer)	
	 Tactical Loggist (see Action Card – Tactical Loggist) 				
	 Tactical Coggist (See Action Card – Tactical Edggist) Tactical Communications Officer (See Action Card – MEOC) 				
9	Confirm e	stablishment of a multi-agen	cv co-locat	ed command presence.	
10	Ensure re	equiar and continued liaison	with other	Emergency Services, Ensure	
	that the following issues are discussed using the JESIP National Joint Decision				
	Making M	lodel			
	Police		Fire and	Rescue	
	Nature o	f incident - ? deliberate	Hazards a	and Firefighting response	
				9 9 9 PPP	

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17 – AMBULANCE INCIDENT COMMANDER

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17 – AMBULANCE INCIDENT COMMANDER

	Receiving and Supporting Hospitals	Victim Location Officer - rescue to	
		entrapped casualties	
	Arrangements for management of	Ensure Operational Liaison between	
	deceased	HART and Fire USAR where	
		appropriate	
	Accessing or commandeering		
	transport for minor injury casualties		
11	Consider sectorisation of the scene if r	required. This should match Police and	
	Fire Sectors where possible.		
12	Using action cards designate appropria	ate staff into the following roles ensuring	
	communications are established via the	e appropriate major incident talk groups:	
	Primary Triage Officers	Secondary Triage Offices	
	Forward Incident Officer(s)	Casualty Clearing and Loading Officers	
	Ambulance Parking Officer	Equipment Officer	
	Ambulance Decontamination (if required))	
13	Deploy WMAS personnel, VAS, and of	ther NHS staff to their best use	
14	With Medical Incident Officer, establish	n Casualty Clearing Station, determine	
	requirement for additional medical reso	ources and communicate this to	
	Strategic Commander. (BURNS – mor	e than 5 major burns – alert RCC)	
15	Arrange for additional resources and s	tock replenishment through the	
	Logistical Support Officer		
16	Confirm that radio communications be	tween Ambulance RCC, MEOC,	
	Ambulance Tactical Command Cell an	d Receiving Hospital(s) are	
	established. Maintain regular commun	ication with Ambulance Points to	
	ensure continued staff, equipment and	vehicle availability. This will be	
	achieved by allocating operational and tactical talk groups, in discussion with		
	the EOC Silver		
17	Pass any requests for sustained additi	onal resources or mutual aid to	
	Strategic Commander.		
18	Liaise with the Police to inform them of	f the receiving and supporting hospitals	
	being used and arrangements for man	agement of the deceased	
19	Liaise with Fire Service regarding the r	rescue of (trapped) casualties,	
	including, if available, direct and freque	ent communications with the Fire Victim	
	Location Officer.		
20	Decide if any specialist equipment (exa	ample lighting) is required; make this	
	request via RCC or Strategic Comman	ider as appropriate.	
21	Have due regard for the safety and we	Ifare of staff at all times, ensure staff	
	receive a safety brief, liaise with other	emergency services regarding their	
	safety risk assessment and escalate a	ny issues appropriately.	
22	In the event that the incident is protrac	ted and you are relived from your post	
	by another Officer – ensure that a full h	handover briefing is provided – ^{Annex G}	
	details the elements which should be included		
23	Notify EOC "Casualty Evacuation Co	mplete – Scene Clear" and "Major	
	Incident – Stand Down" instructions a	as and when necessary.	
24	Provide a full report, Tactical Log and	any other notes to the Emergency	
	Preparedness Department and attend	subsequent debrief (s)	

17 – AMBULANCE INCIDENT COMMANDER

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18 – FORWARD INCIDENT OFFICER

18 – FORWARD INCIDENT OFFICER

ACTION CARD 5 – Forward Incident Officer

FORWARD INCIDENT OFFICER

All staff arriving on scene should report their arrival to the EOC by radio or telephone and in person at the Ambulance Parking Point before entering the scene

OVERALL ROLE: To manage the incident response at the operational level, directly controlling resources under the direction of the Ambulance Incident Commander

N.B. There may be more than one Forward Incident Officer required if an incident is zoned operating under the direction of the Ambulance Incident Officer (Tactical Commander) to directly manage clinical resources within the site or sector.

LOCA	ATION:	Scene	
CALL	SIGN:	Forward (maybe suffixed by number if	incident sectorised)
Ser		ACTIONS	Time
1	Don high v	visibility jacket (marked Forward Incident O	fficer) and helmet. Change ARP
	to operatio	nal talk group as directed by RCC (use AR	P earpiece if available)
2	Commenc	e Personal LOG.	
3	Implement	the instructions of the Ambulance Incident	Commander to directly manage
	to the AIC	as required.	pecific sector) providing updates
4	Direct Am equipment	bulance personnel as needed/consider	use of specialised units and
5	Ensure sur	fficient equipment and staff is available with	nin the forward area.
6	Liaise with teams as n site.	the Medical Incident Officer (MIO) and a needed. Ensure Ambulance Incident Comm	ssist in the directing of medical ander is aware of such teams on
7	Liaise, who	ere required, with the MIO to monitor and m	nanage initial triage.
8	Provide fle	xible managerial control of the forward area	а.
9	Monitor the	e working environment for safe working pra	ctices.
10	In liais	on with the Ambulance Incident Commande	er, ensure:
	 That 	at appropriate access/egress exists	
	 The 	e setting up of a Forward Triage Area/proce	ess
	 The 	e setting up of an Ambulance Loading Poin	t
	 The 	e setting up of an Ambulance Parking Point	t
	 Ca 	sualty Decontamination Area (as required).	
11	Maintain a the JESIP	high degree liaison with other Emergency principles and National Joint Decision Mak	Service representatives utilising ing Model
12	In liaison v	with the Ambulance Incident Commander, a	llocate staff as required to meet
10	Inform the	Ambulance Incident Commander when co	sualty evacuation is complete in
13	sector of r	esponsibility.	adaity avacuation is complete in
14	Be aware	of multi agency interoperable airwave talk g	group
15	Ensure a f	ull report is provided and attend any subset	quent debrief.

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18 – FORWARD INCIDENT OFFICER

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ACTION CARD 5 – Forward Incident Officer

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N.B. There may be more than one Forward Incident Officer required if an incident is zoned operating under the direction of the Ambulance Incident Officer (Tactical Commander) to directly manage clinical resources within the site or sector.

LOCA	ATION:	Scene		
CALL	ALL SIGN: Forward (maybe suffixed by number if incident sectorised)			
Ser		ACTIONS		Time
1	Don high v	visibility jacket (marked Forward Incident O	fficer) and helmet. Change ARP	
	to operatio	nal talk group as directed by RCC (use AR	P earpiece if available)	
2	Commenc	e Personal LOG.		
3	Implement and coordi to the AIC	the instructions of the Ambulance Incident inate medical activities at the incident (or sp as required.	Commander to directly manage becific sector) providing updates	
4	Direct Arr equipment	bulance personnel as needed/consider	use of specialised units and	
5	Ensure su	fficient equipment and staff is available with	in the forward area.	
6	Liaise with teams as r site.	the Medical Incident Officer (MIO) and a needed. Ensure Ambulance Incident Comma	ssist in the directing of medical ander is aware of such teams on	
7	Liaise, who	ere required, with the MIO to monitor and m	nanage initial triage.	
8	Provide fle	xible managerial control of the forward area	а.	
9	Monitor the	e working environment for safe working pra	ctices.	
10	In liais	on with the Ambulance Incident Commande	er, ensure:	
	 The 	at appropriate access/egress exists		
	 The 	e setting up of a Forward Triage Area/proce	ISS	
	 The 	e setting up of an Ambulance Loading Poin	t	
	 The 	e setting up of an Ambulance Parking Point		
	• Ca	sualty Decontamination Area (as required).	.	
11	Maintain a the JESIP	principles and National Joint Decision Mak	Service representatives utilising ing Model	
12	In liaison v the ongoin	with the Ambulance Incident Commander, a g needs of the incident.	llocate staff as required to meet	
13	Inform the sector of r	Ambulance Incident Commander when car esponsibility.	sualty evacuation is complete in	
14	Be aware	of multi agency interoperable airwave talk g	Iroup	
15	Ensure a f	ull report is provided and attend any subset	quent debrief.	

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18 – FORWARD INCIDENT OFFICER

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19 – MEDICAL INCIDENT OFFICER

19 – MEDICAL INCIDENT OFFICER

ACTIO	ON CARD 16 – Medical Incident Officer			
	MEDICAL INCIDENT OFFICER			
All sta	aff arriving on scene should report their arrival to the ICD by radio or telephone a	nd in		
perso	In at the Ambulance Farking Fornt before entering the scene			
LOC	ATION: Scene			
CALL	SIGN: Tactical Medic			
Ser	ACTIONS	Time		
1	Don high visibility jacket (marked Medical Incident Officer) and helmet.			
2	Commence Personal LOG			
_	Dependently, the Archielence Tection Contract Outline has an ADD technologies			
3	Report to the Ambulance Tactical Command Cell, change ARP terminal to			
	earniece if available			
4	The MIO and Ambulance Incident Commander (AIC) should be co-located at			
	the Ambulance Tactical Command Cell for the duration of the incident			
5	Check the identities of medical resources present on scene and ensure their			
	presence is recorded in the log			
6	6 Assume command of all medical resources on scene and in conjunction with			
	the Ambulance Incident Commander allocate medical resources to the			
	Operational Sectors (if required – to assist with triage)			
	Casualty Clearing Station – to assist with treatment			
	Body Holding Area – to confirm life extinct			
7	In conjunction with the AIC and Strategic Commander consider initiation of			
	Expectant (P4) triage category.			
8	Confirm with Ambulance Incident Commander			
	 Receiving and supporting hospitals being used 			
	 Provide regular updates on casualty numbers and movements – 			
	working with the Casualty Clearning Station Officer and			
	Ambulance Loading Officer			
9	Ensure recieveing and supporting hospitals are provided with potification of			
	incoming casualties and regular updates regarding the situation. Utilise the			
	Hospital Ambulance Liaison Officers for these briefings			
10	Provide updates on the medical response and casualty information to the			
	RCC, and assist in the development of media messages where required			
11	In liaison with the Ambulance Incident Commander agree 'Stand Down' time			
10	when appropriate Re-aware of multi-agency intercongraphic circulate talk aroun			
12	be aware of multi-agency interoperable alrwave talk group			
13	Provide a report and attend subsequent debrief			
	1	1		

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19 - MEDICAL INCIDENT OFFICER

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20 – TRIAGE SIEVE

Age	Resps	Pulse	SBP
< 1	30 – 40	110 - 160	70 – 90
1-2	25 – 35	100 – 150	90 – 95
2 – 5	25 – 30	95 – 140	80 - 100
5 – 12	20 – 25	80 - 120	90 - 110
> 12	15 – 20	60 - 100	100 – 120

Generic: $(Age \div 4) \times 2$
1 – 12 months: (0.5 × age in months) + 4
1 – 5 years: (2 × age in years) + 8
6 – 12 years: (3 × age in years) + 7

Weight Range in kg	6-7	8-9	10-11	12-14	15-18	19-22	23-30	31-40
			Volume of	of prepare	ed drugs giv	<u>ven in ml</u>		
Ketamine – 10mg/ml 2mg/kg induction	1.2	1.6	2.0	2.8	3.2	4.0	5.2	7.2
Thiopentone – 25mg/ml 4mg/kg induction	1.0	1.4	1.7	2.0	2.7	3.3	4.0	6.0
Suxamethonium – 50mg/ml 2mg/kg paralytic	0.3	0.4	0.4	0.5	0.6	0.8	1.0	1.4
Rocuronium – 10mg/ml 1.2mg/kg paralytic	0.7	1.0	1.2	1.6	2.0	2.4	3.2	4.4
Morphine – 1mg/ml 0.1mg/kg analgesia	0.6	0.8	1.0	1.3	1.6	2.0	2.7	3.6
Fentanyl – dilute to 10mcg/ml 1mcg/kg	0.6	0.8	1	1.3	1.6	2.0	2.7	3.6
Midazolam – 1mg/ml 0.05mg/kg sedation	0.3	0.4	0.5	0.6	0.8	1.0	1.25	1.75
Ketamine – 10mg/ml <i>MAX 0.5mg/kg - analgesia</i>	0.3	0.4	0.5	0.7	0.8	1.0	1.3	1.8
Adrenaline – 0.1mg/ml (1:10, 000) 10mcg/kg cardiac arrest	0.6	0.8	1.0	1.3	1.6	2.0	2.7	3.6
10% Glucose 2ml/kg	12	16	20	25	30	40	55	70
Rectal Diazepam – 5mg tube	0.5	0.5	1	1	1	2	2	2
IV Diazepam – 5mg/ml <i>0.3mg/kg</i>	0.4	0.5	0.6	0.8	1	1.2	1.5	2
0.9% NaCl – Trauma 10ml/kg	60	80	100	130	160	200	250	350
0.9% NaCl – Shock 20ml/kg	130	170	210	260	330	415	540	720
Tube Size Tube Length DC Shock	3.5 10.5 26J	3.5 10.5 34J	4.0 12 42J	4.5 13.5 52J	5.0 15 66J	5.5 16.5 82J	6.0 18 106J	6.5 19.5 142J

21 – PAEDIATRIC PHYSIOLOGY AND DRUGS

Paediatric emergency drug chart

		ADRENALINE	FLUID BOLUS	GLUCOSE	SOI	DIUM	TRACHEAL TUBE UNCUFFED	TRACHEAL TUBE CUFFED	DEFIBRILLATION	
	STRENGTH	1:10,000	0.9% Saline	10%	4.2%	8.4%				
	DOSE	10 mcg kg ¹	20 mL kg ¹	2 mL kg ¹	1 mm	tol kg ⁻¹			4 joules kg ⁻¹	
	ROUTE	IV, IO	IV, IO	IV, IO	, lo,	N, 10			Trans-thoracic	
	NOTES		Consider warmed fluids	For known hypoglycaemia				Monitor cuff pressure	Monophasic or biphasic	
AGE	WEIGHT kg	Ţ	Ę	Recheck glucose after dose And repeat as required mL	Ļ	L M	um D	mm D	Manual	
<1 month	3.5	0.35	70	7	7	•	3.0		20	
1 month	4	0.4	80	œ	~	•	3.0 - 3.5	3.0	20	
3 months	5	0.5	100	10	10	•	3.5	3.0	20	
6 months	7	0.7	140	14	•	7	3.5	3.0	30	
1 year	10	1.0	200	20		10	4.0	3.5	40	
2 years	12	1.2	240	24	•	12	4.5	4.0	50	
3 years	14	1.4	280	28	•	14	4.5 - 5.0	4.0 - 4.5	60	
4 years	16	1.6	320	32	•	16	5.0	4.5	60	
5 years	18	1.8	360	36	•	18	5.0 - 5.5	4.5 - 5.0	70	
6 years	20	2.0	400	40	•	20	5.5	5.0	80	
7 years	22	2.3	460	46	•	23	5.5-6.0	5.0 - 5.5	100	
8 years	26	2.6	500	50	•	26	•	6.0 - 6.5	100	
10 years	30	3.0	500	50	•	30	·	7.0	120	
12 years	38	3.8	500	50	•	38	•	7 - 7.5	120	
14 years	40	4.0	500	50	•	40	•	7-8	120 - 150	
Adolescent	50kg	5.0	500	50	•	50	•	7-8	120 - 150	
Adult	70kg	10.0	500	50	•	50	•	7-8	120 - 150	
Cardioversion	Synchi	ronised Shock - 1.0]	oules kg ¹ escalating to	o 2.0 joules kg ¹ if uns	uccessful					
Amiodarone	5 mg k	g ¹ IV or IO bolus in arr	est (0.1 mL kg ¹ of 150 i	mg in 3 mL) after 3rd	and 5th sh	nocks. Flush	line with 0.9% sa	line or 5% glucose.		
Atropine	20 mcg) kg ⁻¹ , maximum dose (300 mcg.							

Adrenaline 1:1000 intramuscularly (<6 yrs 150 mcg (0.15 mL), 6-12 yrs 300 mcg (0.3 mL), >12 yrs 500 mcg (0.5mL)) can be repeated after five min. (OR titrate boluses of 1 mcg kg⁻¹ V ONLY if familiar with giving IV adrenaline). 100 mcg kg⁻¹ IV or IO for treatment of SVT. Second dose may be doubled requires large saline flush and ECG monitoring. 100 mcg kg⁻¹ IV or IO for treatment of seizures. Can be repeated after 10 min. Maximum single dose 4mg. 0.2 mL kg¹ for hypocalcaemia hyperkalaemia. Calcium chloride 10% Anaphylaxis Lorazepam Adenosine

Weights averaged on lean body mass from 50th centile weights for males and females. Drug doses based on Resuscitation Council (UK) Guidelines 2015 recommendations Recommendations for tracheal tubes are based on full term neonates. For newborns glucose at 2.5mL kg⁻¹ is recommended.

22 – PAEDIATRIC EMERGENCY DRUGS



VISUAL ANOLOGUE SCORE



Face Legs Arms Cry Consolable Test (FLACC)

Criteria	Score – 0	Score – 1	Score – 2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, uninterested	Frequent to constant quivering chin, clenched jaw
Legs	Normal position or relaxed	Uneasy, restless, tense	Kicking, or legs drawn up
Arms	Lying quietly, normal position, moves easily	Squirming, shifting back and forth, tense	Arched, rigid or jerking
Cry	No cry (awake or asleep)	Moans or whimpers, occasional complaint	Crying steadily, screams or sobs, frequent complaints
Consolability	Content, relaxed	Reassured by occasional touching, hugging or being talked to, distractible	Difficult to console or comfort

23 – PAEDIATRIC PAIN SCORING

RSI CHECKLIST

Oxygen supply	adequate
BVM	connected
End-tidal	connected & on
Blood pressure	.systolic & cycle set
Pulse oximeter	saturations
ECG	heart rate
IV/IO access & fluid	adequate
Suction	working
Laryngoscope	MAC & tested
Endotracheal tube	size & tested
Bougie	adult/child & present
Syringe	present
Airway pouch	present
Difficult airway pouch	present
Induction agent	namemg
Muscle relaxant	namemg
Difficult Airway brief as	required

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24 – RSI CHECKLIST

25 – RSI DRUGS

uo	<mark>Ketamine</mark> (10mg/ml)	NEAT 200mg in 20ml 20ml Syringe	Up to 2mg/kg
Induct	Thiopentone (25mg/ml)	RECONST 500mg with 20ml H2O 20ml Syringe	Up to 4mg/kg

lysis	Rocuronium (10mg/ml)	NEAT 100mg in 10ml 10ml Syringe – 2 Vials	1mg/kg
ara			
Å	Suxamethonium (50mg/ml)	NEAT 100mg in 2ml 2ml Syringe	1 - 2mg/kg

e &	Morphine	DILUTE 10mg with 9ml H2O 10ml	0.5 - 1mg
rs	(1mg/ml)	Syringe	increments
so			
ntenar	Midazolam	NEAT 10mg in 10ml	0.5 - 1mg
opres	(1mg/ml)	10ml Syringe – 2 vials	increments
ain 'as			
Σ >	Metaraminol	DILUTE 10mg with 19ml H2O 20ml	0.5mg
	(0.5mg/ml)	Syringe	increments

Notes:

- Half the dose Ketamine in poly trauma hypotensive pts, consider fluid loading and vasopressors to hand.
- Thiopentone is useful in status epilepticus
- Dose of hypnotic agents (particularly thiopentone) should be reduced where there is cardiovascular compromise including, for example, shock; sepsis; reduced GCS; metabolic disorder; toxaemia; or severe dehydration
- Rocuronium/Suxamethonium only RSI for extremis pts (deep coma with inadequate respiratory function or severe shock), likely to require preloading & vasopressors

25 – RSI DRUGS

26 – RSI SETUP



26 – RSI SETUP

27 – RSI KITDUMP



27 – RSI KITDUMP

30 Second Drills

To be undertaken if the trachea cannot initially be intubated, must be completed within 30 seconds.

Reposition yourself

- Reposition patient
- Suction if necessary
- Reduce downward cricoid pressure in favor of BURP backwards, upwards and right
 pressure to counter the opposing forces exerted by the laryngoscope
- Try an alternative laryngoscope blade

Failed Intubation Drill



Maintain cricoid pressure (if using)

Insert oropharyngeal airway

Maintain oxygenation with 1 or 2-person mask technique

Reduce cricoid pressure if ventilation is difficult

Consider waking the patient up

If the patient is not suitable to be woken up OR SpO2 falls to less than 90% proceed to

Step 2

Insert iGel (max 2 attempts)

Remove cricoid pressure

Oxygenate and ventilate

If ventilation is possible, continue from stage "Attach ventilator" as above If oxygenation and/or ventilation fail, proceed to step 3

Step 3

Perform surgical airway & confirm position

28 – FAILED INTUBATION DRILL

- Gain ART line access
- Set up 500ml NaCl and giving set in disposable pressure infuser pouch
- Prime transducer with NaCl pressurised at 300mmHg pressure infuser has pop out indicator with green bar on it show correct pressure obtained
- Ensure no air bubbles in any of transducer ports
- Secure transducer at heart level (Right Atrium)
- Plug connecting cable into Zoll
- Connect Zoll cable to transducer set
- The message *Zero Probe* will appear in the numeric display window for that IBP channel.
- Zero by following these steps;
- Close the transducer stopcock to the patient
- Open the transducer's venting stopcock to atmospheric air
- Allow the tranducer a few seconds to settle
- Select the IAB channel and open the options menu
- Select Zero Probe.
- The message Zeroing will appear in the IBP numeric display
- The message Zeroed will appear in the IBP numeric display
- Close the tranducer's stopcock.
- Numeric readings should be displayed as below;



- To change label re-enter the options menu
- The Zoll should automatically display the IBP waveform. If there are more than 4 waveforms already then highlight the least important, access its option menu and change the waveform source.

	Lower		Upper	
P1 Systolic Alarm	(90	Д	150	
P1 Diastolic Alarm	60	Д	90	
P1 Mean Alarm	70	Δ	120	
Source Label		P1		
Display Format		S/D (M)		
		Zero Probe	,	

Figure 11-1 Plugging the Transducer into the X Series

29 – INVASIVE PRESSURE MONITORING

Based on Braun Perfusor[®] Space:

- Turn on device & ensure sufficient battery charge, allow self test to take place
- Insert syringe
 - $\,\circ\,$ Pull down front control panel
 - Pull handle on right of driver out and rotate to 90° clockwise
 - Locate syringe into driver (ensure syringe collar to left of turquoise clip)
 - Twist handle back into place & close front control panel
- Confirm new syringe insertion by selecting syringe type (ie Terumo 60ml) pressing OK
 - Driver will lock over end of syringe plunger
- If infusion line has not been primed press ▲ & follow instructions on screen
- To set rate
 - Press ◄ to enter rate menu
 - Press ◄ again & use arrow keys to set correct rate in ml/h
 - Press **OK** when the correct rate has been entered
- To start the infusion press **START/STOP** button
 - \circ The screen will now display rate and volume given



30 – SYRINGE DRIVERS

	Cosford HN	103 / COS03	
DCAE Cosford, C	Crash Gate 2, Worcester Road,	Para ISSI:	955 8070
Albrighton, West Midlands		Doc ISSI:	955 8071
WV7 3EY		Pilot ISSI:	955 8072
		COS03 ISSI:	9566666
SJ 797051	N52 38 38 W02 18 05		
		Landline:	01902 373434
	Strensham H	M06 / STR06	
Strensham Serv	ices M5 Northbound,	Para A ISSI:	955 8080
Strensham, Worcestershire WR8 0BZ		Para B ISSI:	955 8081
		Pilot ISSI:	955 8082
		STR06 A ISSI:	956 0552
SO 894406	N52 03 46 W02 03 46		
		Landline:	01684 295491
	Tatenhill HM	/109 / TAT09	
Tatenhill Airfiel	d,	Para A ISSI:	955 8061
Needwood,	580,	Para B ISSI:	955 8062
Staffordshire		Pilot ISSI:	955 8060
DE13 9PD		TAT09 ISSI:	956 0905
SK 163243	N52 49 01 W01 45 30		
		Landline:	01283 575050
A	ir Desk: 01384 246326	Trauma Desk:	01384 215695
	Charity: 08008 402040	WMAS:	01384 215555
	Becky: 07979 535589	Robbo:	07967 480564

31 - COMMUNICATIONS

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Entry criteria for this triage is a judgement that the patient may have suffered significant trauma

Major Trauma Triage Tool

S

West Midlands Ambulance Service NHS



01384 215695 - RTD Emergency Contact | 01384 215696 - RTD General Enquiries | 01384 215697 - RTD Hospital Line

32 – TRAUMA TRIAGE TOOL

32 – TRAUMA TRIAGE TOOL

33 – ATMIST HANDOVER



Age, sex and name (if know)



Time of injury (or estimated) & arrival time of care



Mechanism of Incident/Injury



Injuries noted or suspected



Vital signs (ABCDE format) & indication if Pt improved/deteriorated

Т

Treatment given including drug and/or fluid

33 – ATMIST HANDOVER