INTRODUCTION

The 2011 release of the Ambulance protocols and pharmacology is an important one for several reasons.

We have extended the concept of the structured clinical evaluation, or ABCDE Primary Survey. This vital assessment tool is necessary for all patients, even for those who do not at first appear to be unwell, even though the reason for this may not be immediately apparent. The structured assessment, which includes the accurate measurement of respiratory and pulse rates, and prioritisation by identifying those potential problems which will cause most harm and intervening to treat them immediately, is recognised in advanced cardiac, trauma and paediatric life support teaching as the key method for recognition of potentially serious pathology. A great deal of research has now shown that accurately measured respiratory rates of 25-30 breaths per minute, for instance, predict cardiac arrest and intensive care unit admission in many instances. Utilising these simple but very important clinical examination techniques advances paramedic abilities to identify the patient truly in need of emergency care.

The need for immediate recognition of the deteriorating patient, embodied in the Primary Survey approach, has become an imperative across the whole of NSW Health, led by the Clinical Excellence Commission, and entitled the Between the Flags program. This program is being introduced into Ambulance in a similar way to that in which it has been implemented in all hospitals in NSW. The Between the Flags program uses colour coded observation charts to identify abnormal physiological observations and provides guidance on the appropriate responses. This is being implemented in Ambulance as the logical next step to the Primary Survey, taking the accurately measured variables and assisting in the identification of both abnormality and trend. Finally, another NSW Health-wide initiative is also being implemented with the Primary Survey and Between the Flags, the Clinical Handover tool. This structured clinical handover is based on recognised principles being implemented across NSW Health, but has been adapted by Ambulance staff to provide a handover specific to our patients. These three initiatives are collectively being termed as the Ambulance Best Clinical Practice Program.

You will also find that there is not only innovation in the treatments available to paramedics and their patients, but also that there has been the introduction of innovative algorithms into Ambulance protocols. The reason for this is not only to make learning easier, as algorithms are closely related to the way that we think and clinically reason, but also to support prompt decision-making and evaluation of patients. The algorithms are closely aligned with the approach detailed in the Ambulance Best Clinical Practice Program, allowing closer harmonisation of assessment, treatment decisions and re-evaluation to assess the effect of our intervention.

All changes to protocol have been based on the best available evidence, and a rigorous process of evidence review and evaluation has been undertaken to support this release of protocols and pharmacology. Where insufficient evidence was found, consensus was sought from senior clinicians both within and outside Ambulance, to ensure that our patients continue to receive the best possible care. This process of basing Ambulance clinical practice on the firmest of published evidence continues a process that has been followed for some time, and which is now being exponentially increased by the skills and training of staff within the Ambulance Research Institute, who have worked with the Ambulance Medical Advisory Service to achieve these aims.

Associate Professor Paul Middleton
Medical Director / Director of Research
The 2011 protocols and pharmacology have been comprehensively reviewed and updated to reflect current terminology and practice. There have been some generic protocol changes, grammatical and spelling corrections made throughout the protocols which will be listed below under “Protocol generic changes” and will not be noted as individual updates to protocol.

**PROTOCOL GENERIC CHANGES**

- The Operations Centre has changed to the Control Centre
- Adult and paediatrics are now referred to as adults and children or where appropriate a specific age group for example “Patients ≤ 6 years old” will be used
- The health mandated policy “Between the Flags Program (BTF)” has been incorporated into the protocols. The Worthing Physiological Score has been removed from practice and replaced with Red Emergency Response and Yellow Clinical Review criteria from the BTF program. In previous versions of the protocols a generic statement “Repeated and documented ABCD examinations and physical observations” has been replaced with “Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration” and a lifesaving flag icon to remind paramedics of the need for multiple documented observations and comparison to the BTF criteria. Further information on BTF can be located on the ASNSW intranet, protocol – R14 and on the NSW Health Intranet [www.health.nsw.gov.au/policies/pd/2010/pdf/PD2010_026.pdf](http://www.health.nsw.gov.au/policies/pd/2010/pdf/PD2010_026.pdf)
- The Clinical Assessment and Referral (CARE) program will cease on 1 February 2011. CARE has been replaced with Low Acuity Patient (LAP) training and incorporated into standard practice. Paramedics will undertake LAP training as part of their CTP workshops. Protocols relating to CARE pathways have been updated to include the new LAP pathways. Paramedics who have completed CARE training are authorised to implement LAP pathways from 1 February 2011.
- Where possible, specific pharmacology references and doses have been removed from the specific protocols and are referenced only in the related pharmacology. Some protocols with specific changes may still have related pharmacology listed eg C8 – Dysrhythmias (Tachycardia). Protocol S7 Newborn Care has related pharmacology doses listed in the protocol only due to the specialised nature of the protocol

**PROTOCOL DELETIONS**

The rationale for deleted protocols can be found on the related protocol page. Deleted protocols are listed below:

- Protocol M12 – Non cardiac chest pain
- Protocol C4 – Cardiac arrest with a non-shockable rhythm
- Protocol C10 – Hypertension (severe)
- Protocol P3 – Non transport healthy at home
- Protocol X3 – Cardiac reperfusion – primary angioplasty
NEW PROTOCOLS

Protocol F6 – Informed consent, capacity & competency
Rationale: A paramedic who treats a patient without authorisation acts unlawfully. Whilst the protocols and pharmacology of the ASNSW authorise paramedics to treat patients according to the paramedic’s relevant skill level, the necessary authorisation is given by the patient who provides consent to the treatment having proven their competency and capacity to make such a decision. Protocol F6 provides the framework for determining if a patient has the necessary competency and capacity to make an informed decision and provide consent for treatment. Further information can be found at http://www.lawlink.nsw.gov.au/lawlink/diversityservices/LL_DiversitySrvces.nsf/pages/diversity_services_capacity_toolkit.

Protocol F7 – Transport decision algorithm
Rationale: Protocol F7 replaces reference R13. In algorithm format protocol F7 provides a structured flow of patient dispositions incorporating the BTF criteria, LAP pathways and recommendations for transport.

Protocol M17 – Epistaxis
Rationale: Nasal haemorrhage usually arrests following the application of basic first aid. Patients presenting with epistaxis where the haemorrhaging has ceased do not necessarily require transport to ED provided there are no health issues associated with the epistaxis. Protocol M17 provides authorised paramedics with a non transport option under low acuity patient pathways.

Protocol M18 – Dental problems
Rationale: The treatment of dental problems/emergencies is specialised, with local emergency departments limited in the care and treatment they are able to provide to these patients. Protocol M18 details specific treatment for dental problems and provides authorised paramedics with a non transport option under low acuity patient pathways. Dental problems are best managed by a dentist however the emergency department can provide supportive management (e.g. analgesia, antibiotics) if access to a dentist cannot be facilitated in a timely manner or if the dental problem has medical complications (e.g. facial bone fracture, infection).

Protocol M19 – Chronic obstructive pulmonary disease (COPD)
Rationale: COPD and asthma are clinically very different diseases with similar presentations. Protocol M19 provides specific information and treatment for patients with exacerbation of COPD.

Protocol M20 – Gastroenteritis
Rationale: Gastroenteritis is a common infection of the gastrointestinal system that typically results in diarrhoea and vomiting. The management of patients with suspected gastroenteritis outside the ED has many benefits in patients that are systemically well. Protocol M20 provides authorised paramedics with a non transport option under low acuity patient pathways for patients with suspected gastroenteritis.

Protocol C2 – Resuscitation decision algorithm
Rationale: The previous version of protocol C2 “Cardiac arrest – general” has been replaced with the “Resuscitation decision algorithm”. The algorithm provides specific advice on when to consider not commencing resuscitation through expanded reasons to
withhold resuscitation, when to cease resuscitation and when minimising scene time to transport urgently to hospital is required. Patients who meet the exclusion criteria listed in protocol C2 should be transported urgently to hospital with treatment provided en-route. The algorithm allows for paramedics to make a decision to commence resuscitation if circumstances require them to or they are unsure about the suspected cause of cardiac arrest. Resuscitation can be discontinued at anytime as further information becomes available and the patient meets reasons to withhold resuscitation or the patient remains in asystole post 20 minutes of resuscitation by paramedics. This decision algorithm aims to reduce futile resuscitation attempts and reduce transport rates of pulseless patients requiring CPR enroute.

**Protocol C3 – Cardiac Arrest**
Rationale: The previous cardiac arrest protocols C3 “Cardiac arrest – with VF” and C4 “Cardiac arrest with a non-shockable rhythm” have been merged into protocol C3 “Cardiac arrest”. Protocol C3 is presented in algorithm format consistent with Australian and international resuscitation guidelines (ARC guideline 11.2 [http://www.resus.org.au/]). This algorithm approach reflects that many cardiac arrests have shockable and non-shockable periods rather than single rhythms. Central to the algorithm is a yellow information box providing a list of possible reversible causes and a list of the related pharmacology to both cardiac arrest and the reversible causes. The cardiac arrest specific pharmacology is also provided in a box under each treatment path. Consideration of reversible causes should be at the forefront of paramedics thinking during the management of cardiac arrest and if suspected should be treated if authorised. If reversible causes are suspected and specific management cannot be provided, patients should be urgently transported in accordance with Protocol C2.

**Protocol T17 – Deteriorating Trauma Patient**
Rationale: Protocol T17 provides detailed specific instruction on the assessment and management of a deteriorating trauma patient and traumatic cardiac arrest. Previously these two conditions were covered over several protocols in part only. Protocol T17 combines this information into one protocol. The management of deteriorating patients has been the subject of root cause analysis and a protocol has been developed to highlight important considerations in managing this situation.

**Protocol T18 – Wound Care**
Rationale: Wounds are common and the majority of minor wounds and simple lacerations may be managed safely outside the ED. Some chronic wounds may be managed safely outside the ED through community health programs. Protocol T18 provides authorised paramedics with a non-transport option under low acuity patient pathways.

**Protocol T19 – Falls in the elderly.**
Rationale: Falls are one of the most common reasons for calls to triple zero. Elderly patients who have fallen and are uninjured or may require simple first aid treatment only may now have a mobility assessment performed by the paramedic. Providing no high risk criteria are present and the patient is able to perform all tasks in the mobility assessment the patient can be treated and not transported using protocol T19 in conjunction with existing low acuity patient pathways. It is acknowledged that the majority of elderly patients who fall will still require/request transport to hospital. Thorough assessment (i.e. primary survey, secondary survey, mobility assessment and elderly at risk screen) will
allow paramedics to identify risks to the patient and they can provide clinical advice accordingly. Low acuity supported non transport may apply to suitable patients if no high risk features are identified.

Protocol S6 – Suicide risk assessment and management
Rationale: Protocol S6 has been developed to provide paramedics with an expanded assessment and management protocol for patients who are threatening or attempting suicide. Reference R16 has been included into the 2011 protocols and pharmacology which provide paramedics with a list of government and community contact numbers.

Protocol S7 – Newborn care
Rationale: Protocol S7 details the specific care and resuscitation of newborns. This protocol contains pharmacology specific information that is not repeated in the individual pharmacology. The management of newborns is quite different from children and adults and specific guidance is provided to support paramedics manage this challenging situation.

Protocol S8 – Elderly at risk
Rationale: The elderly at risk (EAR) screen is an assessment tool utilised under low acuity patient pathway for the assessment of elderly patients. Elderly patients whose primary presenting condition could be managed under an existing low acuity patient pathway must have an EAR screen completed prior to paramedics not recommending transport under protocol P5 or implementing protocols P2, P7 and P8.

Protocol S9 – Palliative care
Rationale: Protocol S9 permits authorised paramedics trained in low acuity patient assessment to not recommend transport for palliative care patients who have an existing end of life care plan or where contact can be made with a palliative care team and the patient’s treatment options have been confirmed. It is important to note that not all terminally ill patients are under the care of a palliative care team and not all paramedics will have completed LAP training prior to the implementation of the 2011 protocols, therefore protocol S5 – Terminal illness remains current and should be applied if paramedics are not authorised to use Protocol S9.

Protocol D5 – Nerve agent poisoning
Rationale: Protocol D5 has been developed to support the introduction of atropine auto injectors and atropine/obidoxime combo pens into ambulance practice for the clinical management of nerve agent poisoning. The nerve agent protocol and associated pharmacology can only be used by paramedics authorised by the ASNSW Medical Commander or ASNSW Medical Director and/or NSW Health Chief Health Officer during nerve agent incidents.

PROTOCOL UPDATES/AMENDMENTS
Change: Multiple protocols – Inclusion of low acuity patient supported non transport options.
Rationale: The following list of protocols has been updated with low acuity patient supported non transport options:
- Protocol M4 – Asthma
- Protocol M9 – Seizures
- Protocol T4 – Head injury
- Protocol M11 – Hypo/hyperglycaemia
• Protocol E6 – Snake, spider and marine creature bite
• Protocol D4 – Oleoresin capsicum spray exposure
• Protocol T7 – Limb injuries and fractures

Change: Multiple protocols – Inclusion of treatment algorithms.
Rationale: The following list of protocols has been updated with treatment algorithms. The linear protocol remains as an adjunct to the algorithm in this version of the protocol and pharmacology:
• Protocol T4 – Head Injury
• Protocol T7 – Limb injuries and fractures
• Protocol T12 – Burns
• Protocol S4 – Assault/sexual assault

Change: Protocol F5 – paediatric patients are no longer contraindicated.
Rationale: The benefits of patient management to some paediatric patients have been identified by AMAS and the contraindication to the use of patient management protocol has been removed. Caution should always be used when providing sedation for patient management and this is of particular importance in children where adverse effects may be more evident, especially hypoventilation. Whilst important in all patients, regular ABCD physical examinations and physiological observations are especially important in these patients.

Change: Protocol M2 – The assessment and treatment of airway obstruction due to foreign body has been updated to reflect current guidelines.
Rationale: ARC Guideline 4 – Airway (http://www.resus.org.au/).

Change: Protocol M4 – inclusion of the asthma severity assessment tool and treatment algorithm.
Rationale: Asthma is a life threatening condition. The severity assessment tool will guide paramedics in their treatment of patients with asthma in accordance with asthma severity.

Change: Protocol M7 – The signs of severe croup from Stridor – at rest plus two or more signs of severe croup to ANY TWO SIGNS of severe croup for the administration of nebulised adrenaline.
Rationale: Not all patients presenting with severe croup will have stridor at rest, however these patients would benefit from the administration of nebulised adrenaline to relieve their signs and symptoms. Paramedics must be mindful however that there must be clinical suspicion of croup to apply this protocol (e.g. barking cough) as signs of severe croup are not exclusive to coughing.

Change: Protocol M13 – inclusion of meningococcal information previously located in reference R10 (deleted) and treatment algorithm.
Rationale: The early administration of antibiotics in suspected cases of meningococcal septicaemia can be life saving. The protocol clarifies which patients should be administered benzyl penicillin in the pre hospital setting. This decision is linked with the BTF red and yellow criteria and clarifies how the presence or absence of a rash affects patient management. This protocol no longer requires the presence of a rash to
administer benzyl penicillin but rather relies on clinical indicators to triage antibiotic administration.

**Change:** Protocol C5 – removal of morphine and salbutamol in the treatment of cardiogenic pulmonary oedema (CPO).

**Rationale:** Morphine has been commonly used for the treatment of the anxiety associated with CPO. It is important that paramedics reassure patients and in conjunction with current treatment regime attempt to reduce the patient’s anxiety. Whilst morphine may appear effective in reducing a patient's anxiety, its use has been associated with worse outcomes and does not affect the underlying pathophysiology of CPO. The administration of morphine may further exacerbate respiratory failure through its sedative effects. The use of morphine is no longer a priority in the acute management of CPO. Anxiety is a symptom of the underlying pathophysiology and treatment should focus on the management of hypoxia and administration of nitrates ± diuretics.

Bronchospasm is uncommon in patients with CPO. The presence of wheeze is most likely due to pulmonary interstitial fluid and not reversible bronchospasm. Salbutamol has no effect on addressing the underlying pathophysiology and may increase the heart rate further exacerbating heart failure. If bronchospasm is a prominent feature paramedics should consider an alternate diagnosis and treatment regime. The clinical management of CPO is currently under review and the Ambulance Research Institute (ARI) is conducting a randomised controlled clinical trial to evaluate the use of pre hospital continuous positive airway pressure (CPAP) compared to standard care.

**Change:** Protocol C6 – Hartmann’s infusion for cardiogenic shock.

**Rationale:** Determining the exact causes of hypotension/shock in medical patients is often difficult in the pre-hospital environment. Hypovolaemia is a common cause. The administration of small boluses of Hartmann’s, even in shock of suspected cardiac cause, will reverse any absolute hypovolaemia and may increase venous return and cardiac output sufficiently enough to reverse the shock state without the need for an adrenaline infusion. In the ED setting an adrenaline infusion is infrequently used as the first line management of cardiogenic shock. Small fluid boluses are typically used in the early phase of management. In some patients the administration of fluid may precipitate acute pulmonary oedema however this is rare in practice.

**Change:** Protocol C8 – Inclusion of synchronised cardioversion and patient sedation.

**Rationale:** Severe tachydysrhythmias are potentially life threatening. Several years ago unsynchronised cardioversion was removed from the protocols as the practice was no longer supported. Current guidelines recommend cardioversion for “unstable” patients in preference to the use of anti-arrhythmic agents. In conscious patients, sedation is required prior to cardioversion. Sedation in unstable patients must be used cautiously and pre-administration of oxygen and Hartmann’s will help to reduce adverse effects. Both the administration of analgesia and sedation are required. Synchronised cardioversion is currently practiced by ICPs in most ambulance jurisdictions and this practice is well supported by current guidelines. The risks and benefits of pre hospital synchronised cardioversion must be considered and must only be performed following completion of the ICP education package.
Rationale: The results of the ASNSW spinal working group have recommended changes to ASNSW protocol, pharmacology and skills which are to be updated. Further information regarding the working group’s recommendations and changes to protocol T5 will be issued separately as clinical bulletins.

Change: Protocol T12 – The initial fluid replacement formula and specific Hartmann’s dose references have been removed from protocol.
Rationale: The emphasis in the treatment of burns must be the initial complete cooling of the burn area for a minimum of 20 minutes. It is important to be vigilant in looking for signs of hypothermia in patients whilst cooling the burn area. Hydrogel burns dressings MUST NOT be used on patients with prior cooling of the burn area as this may promote the development of hypothermia. Elevation of the burnt area will assist in reduction of swelling. Fluid resuscitation in the early treatment of burns patients is only required where a radial pulse is absent. Aggressive fluid resuscitation in the early stages of treatment may increase swelling and may contribute to a poorer prognosis for burns patients.

Rationale: ARC guideline 8.9.6 – Envenomation (http://www.resus.org.au/).

Change: Protocol S2 – Update of post delivery of the newborn care and reference to new protocol S7 (newborn care). The specific treatment of postpartum haemorrhage has been updated with a list of reversible causes.
Rationale: Treatment has been updated in line with best practice.

Rationale: No specific protocol previously existed for the treatment of patients who have been assaulted.

Rationale: Paramedics are not authorised to treat patients without consent except under specific circumstances. Patients who are intoxicated may not be able to demonstrate capacity and competency when consenting to treatment or declining transport. Specific conditions covered in the revised protocol are best treated in the ED.

Change: Protocol P2 – Change of name to Non Transport – Transport refused.
Rationale: A recommendation of transport to hospital must be made to all patients who present with conditions not covered under low acuity patient supported non transport. Patients may refuse transport provided they have demonstrated competency and capacity. A list of conditions has been included where a strong recommendation of transport should be made if the patient initially refuses transport to the ED.

Change: Protocol P5 – Change of name to Non Transport Recommended.
Rationale: Low acuity patient supported non transport has replaced the previous CARE pathways. Where a patient meets the protocol procedure requirements and has no generic or P5 protocol specific exclusions, authorised paramedics are enabled to recommend non ED alternatives in place of transport to the ED.
PROTOCOL & PHARMACOLOGY AMENDMENTS

CHANGES/UPDATES TO REFERENCE MATERIAL

- Reference R1 – Deleted
- Reference R2 – Updated to reflect current practice
- Reference R3 – Updated to reflect current practice
- Reference R4 – Updated with material from R5
- Reference R5 – Deleted
- Reference R6 – No change
- Reference R7 – APGAR removed into protocol S7, adult and children peak flow expiratory charts included
- Reference R8 – Updated
- Reference R9 – No change
- Reference R10 – Deleted
- Reference R11 – No change
- Reference R12 – No change
- Reference R13 – Deleted
- Reference R14 – NEW Between the Flags criteria
- Reference R15 – NEW Handover tools
- Reference R16 – New Patient support contact numbers
- Reference R17 – New “Person responsible”
- Reference R18 – New Sudden unexpected death of an infant specialist hospitals list

PHARMACOLOGY CHANGES

Pharmacology: Adrenaline – Cardiac arrest.
Change/rationale: The need for post resuscitation care has been reinforced in accordance with Australian resuscitation guidelines. Hypotension post successful resuscitation is associated with poorer outcomes. The target SBP post restoration of spontaneous circulation is 100 mmHg and can be obtained by either 50 mcg boluses or an adrenaline infusion. Adrenaline in adult cardiac is now approved for use by P1 paramedics (ARC guideline 11.2  http://www.resus.org.au/).

Pharmacology: Adrenaline – Bradycardia.
Change/rationale: The maximum bolus in children now does not exceed maximum adult bolus dose. The maximum number of doses has been removed for all ages (i.e. there is now no maximum dose).

Pharmacology: Adrenaline - Asthma/anaphylaxis.
Change/rationale: Frequency of repeat doses has been reduced from 10 min to 5 min in accordance with current first aid practices for the management of anaphylaxis (www.allergy.org.au).

Pharmacology: Atropine – Bradycardia.
Change/rationale: Maximum dose has been increased to ensure that full anti-cholinergic effects are achieved.

Pharmacology: Atropine – Autoinjector.
Change/rationale: The atropine autoinjector is a specialist item stored in a central cache and deployed to the scene as required. Authorisation for use is only for P1 paramedics
and above when approved by the ASNSW Medical Director and/or NSW Health Chief Health Officer.

**Pharmacology:** Obidoxime/Atropine auto injector.
**Change/rationale:** This pharmacology is new. Obidoxime is a nerve agent antidote that reactivates acetylcholinesterase and is for use in nerve agent poisoning (Protocol D5). It is a specialist item stored in a central cache and deployed to the scene as required. Authorisation for use is only for P1 paramedics and above when approved by the ASNSW Medical Director and/or NSW Health Chief Health Officer.

**Pharmacology:** Glyceryl trinitrate – Acute coronary syndrome.
**Change/rationale:** The GTN use has been changed to clarify when patients should be administered GTN for suspected acute coronary syndrome. GTN is indicated for patients with suspected ACS when there is chest pain or discomfort or referred pain or discomfort. If there is suspected ACS and there is no chest or referred pain or discomfort no GTN need be administered. GTN is only indicated in suspected ACS when pain discomfort is present. Contraindications have been added to limit administration of GTN for tachydysrhythmias where pain/discomfort is most likely due to an increased heart rate where GTN administration could cause/exacerbate haemodynamic stability. Contraindications have been added to limit the administration of GTN for bradycardic patients, where GTN administration could cause/exacerbate haemodynamic stability.

**Pharmacology:** Hartmann’s – Multiple uses.
**Change/rationale:** Hartmann's has been significantly reviewed and revised. For trauma cases, indications are for hypovolaemic shock with or without head injuries. For adults, In the presence of head injury, the threshold for the administration of fluid is a SBP < 100 mmHg where 250 mL aliquots of fluid should be administered. Where no head injury is present, the threshold for the administration is the absence or loss of a radial pulse. This fluid regime is to minimise fluid administration until patients are at a suitable facility to surgically control haemorrhage. There is good evidence to suggest that excessive fluid administration is associated with poorer outcomes. In children, systolic blood pressure is the threshold to administer fluid in the same categories as above.

Routine fluid administration for the management of burns has been removed. Formulas to guide fluid administration are difficult to apply in the pre-hospital setting as the pre-hospital phase is short. Over infusion can increase burn swelling, may exacerbate airway swelling and can increase limb oedema. With the majority of burns patients arriving at an ED in < 1 hour, commencing fluid administration in accordance with recommended formulas can commence in hospital. If hypovolaemia / hypotension are present, this should be managed as described above.

For non-traumatic hypovolaemic shock, the administration of more generous fluid administration is safe and appropriate with the threshold being 2 or more key signs of severe shock as per the hypovolaemia protocol.

Cardiogenic shock has been added as an indication for fluid administration. This has been included to reflect emergency department practice where the administration of Hartmann’s may negate the need to give an adrenaline infusion.

Indications for rehydration / fluid replacement have been combined.
Preparation has been changed to include 500mL bags of Hartmann’s to reflect Department of Health guidelines to reduce the risk of over infusion especially in children. ASNSW will transition to 500mL bags during 2011. The need to set up another bag is an opportunity to reflect if indications for further fluid administration remain.

**Pharmacology:** Lignocaine – Refractory VF/VT.
Lignocaine has been reintroduced for the management of refractory VF/VT unresponsive to shocks, CPR, adrenaline and amiodarone as a second-line anti-dysrhythmic agent. The use of lignocaine for wide complex tachycardia (VT) has been removed for patient’s ≥ 16 years old.

**Pharmacology:** Metoclopramide.
**Change/rationale:** Metoclopramide has been significantly reviewed to reflect current practice. The **type** has been altered to reflect the role of metoclopramide to treat nausea and vomiting. The **action** has been simplified to reflect the pharmacological action. Use clarifies the indications for metoclopramide for adult patients. The **adverse effects** have been reviewed to better reflect common and less common adverse effects. Contraindications have been reviewed to reflect conditions where agents other than metoclopramide are preferred.

**Pharmacology:** Morphine.
**Change/rationale:** Acute pulmonary oedema has been removed as an indication for morphine administration. Post intubation sedation and synchronised cardioversion have been added. Contraindications have been reviewed, active labour has replaced ‘Women in labour’ and IM administration for burns patients included.
The IM dose has been reduced in line with current clinical practice. IM administration has been clarified and should only be used where IV access or IN fentanyl is not available. A new dose regime has been added for synchronised cardioversion (0.1 mg/kg) to ensure adequate analgesia prior to cardioversion. The use of morphine for post intubation sedation has been added. Morphine and midazolam will be mixed together with 0.9% NACL to create morphine/midazolam solution consisting of 1mg morphine / 1 mg midazolam per mL. This is to reflect current emergency department and intensive care practice where analgesia and sedation are provided for intubated patients.

**Pharmacology:** Naloxone.
**Change/rationale:** Indications are now described for non-clinical, clinical and etorphine / buprenorphine. In adults, initial IM / IV dose has been increased to 800 mcg to reduce the likely need for further doses. Paediatric doses have been reduced to reflect the current recommendations in toxicology literature (reference Sirens 4 May 2010).

**Pharmacology:** Midazolam.
**Change/rationale:** Synchronised cardioversion is a new indication.

Doses of midazolam have been adjusted for all indications. Patient management has been reviewed. IV doses have been increased to allow a maximum of 15mg to be administered and the contraindication for paediatrics in patient management removed. IM use is also now approved for trauma patients if IV access is unavailable.

For post intubation sedation morphine and midazolam will be mixed together with 0.9% NACL to create morphine/midazolam solution consisting of 1mg morphine/1 mg midazolam per mL.
midazolam per mL. This is to reflect current emergency department and intensive care practice where analgesia and sedation are provided for intubated patients.

**Pharmacology:** Amiodarone.
**Change/rationale:** Amiodarone is now indicated for tachycardia in accordance with Protocol C8. Amiodarone is recommended by Australian and international resuscitation guidelines.

**Pharmacology:** Glucose 10%.
**Change/rationale:** Paediatric dose has been adjusted to not exceed adult dose.
## PROTOCOL INDEX

**PRE-HOSPITAL FUNDAMENTALS**

<table>
<thead>
<tr>
<th>Code</th>
<th>Protocol Name</th>
<th>Last Issue</th>
<th>Revised</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>The principles of pre-hospital care</td>
<td>Jul 2008</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>F2</td>
<td>Basic patient care</td>
<td>Mar 2010</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>F3</td>
<td>Patient transport</td>
<td>Sep 2004</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>F4</td>
<td>Pain management</td>
<td>Jul 2008</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>F5</td>
<td>Patient management</td>
<td>Mar 2007</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>F6</td>
<td>Informed consent, capacity &amp; competency</td>
<td>NEW</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>F7</td>
<td>Transport decision algorithm</td>
<td>NEW</td>
<td>Jan 2011</td>
</tr>
</tbody>
</table>

**MEDICAL/SURGICAL**

<table>
<thead>
<tr>
<th>Code</th>
<th>Protocol Name</th>
<th>Last Issue</th>
<th>Revised</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>Abdominal conditions</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>M2</td>
<td>Airway obstruction due to foreign body</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>M4</td>
<td>Asthma</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>M5</td>
<td>Altered level of consciousness</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>M6</td>
<td>Nausea &amp; vomiting</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>M7</td>
<td>Croup</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>M8</td>
<td>Dehydration</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>M9</td>
<td>Seizures</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>M11</td>
<td>Hypo/hyperglycaemia</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>M12</td>
<td>DELETED</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>M13</td>
<td>Meningococcal septicaemia</td>
<td>Nov 2006</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>M14</td>
<td>Respiratory distress</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>M15</td>
<td>Autonomic dysreflexia</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>M16</td>
<td>Anaphylaxis and allergic reactions</td>
<td>Mar 2010</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>M17</td>
<td>Epistaxis</td>
<td>NEW</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>M18</td>
<td>Dental problems</td>
<td>NEW</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>M19</td>
<td>Chronic obstructive pulmonary disease</td>
<td>NEW</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>M20</td>
<td>Gastroenteritis</td>
<td>NEW</td>
<td>Jan 2011</td>
</tr>
</tbody>
</table>

**CARDIAC/CARDIOVASCULAR**

<table>
<thead>
<tr>
<th>Code</th>
<th>Protocol Name</th>
<th>Last Issue</th>
<th>Revised</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>Acute coronary syndrome</td>
<td>Jun 2006</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>C2</td>
<td>Resuscitation decision algorithm</td>
<td>Jun 2006</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>C3</td>
<td>Cardiac Arrest</td>
<td>Mar 2007</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>C4</td>
<td>DELETED</td>
<td>Apr 2010</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>C5</td>
<td>Cardiogenic pulmonary oedema</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>C6</td>
<td>Cardiogenic shock</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>C7</td>
<td>Dysrhythmias – bradycardia</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>C8</td>
<td>Dysrhythmias – tachycardia</td>
<td>Mar 2007</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>C9</td>
<td>Hyperkalaemia</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>C10</td>
<td>DELETED</td>
<td>Jun 2006</td>
<td>Jan 2011</td>
</tr>
</tbody>
</table>

Note: The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services

Last Issued: January 2009
Revised: January 2011
## PROTOCOL INDEX

<table>
<thead>
<tr>
<th>Protocol ID</th>
<th>Protocol Title</th>
<th>Issue Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>C11</td>
<td>Stroke</td>
<td>Jul 2009 to Jan 2011</td>
</tr>
<tr>
<td>C12</td>
<td>Cardiac reperfusion – primary angioplasty</td>
<td>Mar 2010 to Jan 2011</td>
</tr>
<tr>
<td><strong>TRAUMA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>Pre-hospital management of major trauma</td>
<td>Mar 2010 to Jan 2011</td>
</tr>
<tr>
<td>T2</td>
<td>Multiple victim situations</td>
<td>Sep 2001 to Jan 2011</td>
</tr>
<tr>
<td>T3</td>
<td>Helicopter operations severe trauma – “primary response”</td>
<td>Jul 2008 to Jan 2011</td>
</tr>
<tr>
<td>T4</td>
<td>Head injuries</td>
<td>Mar 2007 to Jan 2011</td>
</tr>
<tr>
<td>T5</td>
<td>Spinal injuries</td>
<td>Jul 2009 to Jan 2011</td>
</tr>
<tr>
<td>T6</td>
<td>Chest injuries</td>
<td>Mar 2007 to Jan 2011</td>
</tr>
<tr>
<td>T7</td>
<td>Limb injuries and fractures</td>
<td>Jul 2009 to Jan 2011</td>
</tr>
<tr>
<td>T8</td>
<td>Penetrating trauma</td>
<td>Mar 2007 to Jan 2011</td>
</tr>
<tr>
<td>T9</td>
<td>Pelvic injuries</td>
<td>Jul 2008 to Jan 2011</td>
</tr>
<tr>
<td>T10</td>
<td>Hypovolaemia</td>
<td>Nov 2006 to Jan 2011</td>
</tr>
<tr>
<td>T11</td>
<td>Soft tissue injuries of the face and neck</td>
<td>Jul 2009 to Jan 2011</td>
</tr>
<tr>
<td>T12</td>
<td>Burns</td>
<td>Jul 2009 to Jan 2011</td>
</tr>
<tr>
<td>T13</td>
<td>Eye injuries</td>
<td>Jul 2009 to Jan 2011</td>
</tr>
<tr>
<td>T14</td>
<td>Electric shock</td>
<td>Jul 2009 to Jan 2011</td>
</tr>
<tr>
<td>T15</td>
<td>Trapped patient</td>
<td>Jul 2009 to Jan 2011</td>
</tr>
<tr>
<td>T16</td>
<td>Limb realignment and/or difficult extrication</td>
<td>Jul 2008 to Jan 2011</td>
</tr>
<tr>
<td>T17</td>
<td>Deteriorating trauma patient</td>
<td>NEW to Jan 2011</td>
</tr>
<tr>
<td>T18</td>
<td>Wound care</td>
<td>NEW to Jan 2011</td>
</tr>
<tr>
<td>T19</td>
<td>Falls in the elderly</td>
<td>NEW to Jan 2011</td>
</tr>
<tr>
<td><strong>ENVIRONMENTAL / ENVENOMATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E1</td>
<td>Chemical biological radiological (CBR)/hazmat</td>
<td>Jul 2009 to Jan 2011</td>
</tr>
<tr>
<td>E2</td>
<td>Diving emergencies</td>
<td>Jul 2009 to Jan 2011</td>
</tr>
<tr>
<td>E3</td>
<td>Hyperthermia</td>
<td>Jul 2009 to Jan 2011</td>
</tr>
<tr>
<td>E4</td>
<td>Hypothermia</td>
<td>Jul 2009 to Jan 2011</td>
</tr>
<tr>
<td>E5</td>
<td>Drowning</td>
<td>Jul 2009 to Jan 2011</td>
</tr>
<tr>
<td>E6</td>
<td>Snake, spider and marine creature bite</td>
<td>Jul 2009 to Jan 2011</td>
</tr>
<tr>
<td>E7</td>
<td>Smoke or noxious gas inhalation and carbon monoxide poisoning</td>
<td>Jul 2009 to Jan 2011</td>
</tr>
<tr>
<td><strong>SPECIALISED CARE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>Home renal dialysis emergency</td>
<td>Jul 2009 to Jan 2011</td>
</tr>
<tr>
<td>S2</td>
<td>Obstetric emergencies</td>
<td>Mar 2007 to Jan 2011</td>
</tr>
<tr>
<td>S3</td>
<td>Mental health emergency</td>
<td>Mar 2010 to Jan 2011</td>
</tr>
<tr>
<td>S4</td>
<td>Assault/sexual assault</td>
<td>Sep 2001 to Jan 2011</td>
</tr>
<tr>
<td>S5</td>
<td>Terminal illness</td>
<td>Sep 2001 to Jan 2011</td>
</tr>
<tr>
<td>S6</td>
<td>Suicide risk assessment and management</td>
<td>NEW to Jan 2011</td>
</tr>
</tbody>
</table>

*Note: The most current version of this document is available on the ASNSW Intranet site.*
# Protocol Index

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Revision</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>S7</td>
<td>Newborn care</td>
<td>NEW</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>S8</td>
<td>Elderly at risk</td>
<td>NEW</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>S9</td>
<td>Palliative Care</td>
<td>NEW</td>
<td>Jan 2011</td>
</tr>
</tbody>
</table>

## Drug / Toxicology

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Revision</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>Drug overdose and poisoning</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>D2</td>
<td>Organophosphate poisoning</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>D3</td>
<td>Alcohol intoxication</td>
<td>Mar 2007</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>D4</td>
<td>Oleoresin capsicum spray exposure</td>
<td>Mar 2005</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>D5</td>
<td>Nerve agent poisoning</td>
<td>NEW</td>
<td>Jan 2011</td>
</tr>
</tbody>
</table>

## Patient Transport Decisions

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Revision</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Authorised care</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>P2</td>
<td>Non transport – transport refused</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>P3</td>
<td>DELETED</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>P5</td>
<td>Non transport recommended</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>P6</td>
<td>Incident in control of another agency</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>P7</td>
<td>Non transport – non health issues</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>P8</td>
<td>Non transport – casualty stations</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
</tbody>
</table>

## Reference

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Revision</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>R2</td>
<td>Blood/body fluid exposure management</td>
<td>Jul 2008</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>R3</td>
<td>Disease index</td>
<td>Jul 2008</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>R4</td>
<td>Sensory and motor examinations</td>
<td>Aug 2002</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>R5</td>
<td>Spinal cord injury examination</td>
<td>Aug 2002</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>R6</td>
<td>Burns percentage</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>R7</td>
<td>Miscellaneous tables</td>
<td>Jul 2005</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>R8</td>
<td>Hazchem tables</td>
<td>Aug 2002</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>R9</td>
<td>Helicopter operations</td>
<td>Aug 2002</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>R11</td>
<td>Drug and fluid formulae</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>R12</td>
<td>Seizure types</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>R14</td>
<td>Clinical review and emergency response criteria</td>
<td>NEW</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>R15</td>
<td>Handover tools</td>
<td>NEW</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>R16</td>
<td>Patient support contact numbers</td>
<td>NEW</td>
<td>Jan 2011</td>
</tr>
</tbody>
</table>

## Pilots / Evaluation

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Revision</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>X2</td>
<td>Cardiac reperfusion – pre hospital thrombolysis</td>
<td>Mar 2010</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>X3</td>
<td>DELETED</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
</tbody>
</table>
1. TEAMWORK & DECISION MAKING
Teamwork is essential. The paramedic will maintain effective working relationships with other paramedics, police, fire brigade, rescue workers, nurses, doctors and members of the public to ensure the patient receives optimum care during the entire patient journey

Team decision making should be used when considering provisional diagnosis, treatment modalities, administration of drugs, and resuscitation or transport decisions

2. ASSESS THE SCENE
1. Protect yourself and the patient from danger or contamination at the scene. If any chemical affects a patient or you experience signs or symptoms consistent with contamination, evacuate to a point upwind and attempt to contain the area
2. Advise the Control Centre of the need for specialist paramedics, rescue, fire brigades (HAZMAT), police and medical teams as required including a scene MIST report

3. TREATMENT
Pre-hospital care for all patients must be performed rapidly and efficiently using the following problem solving approach:
- Assess the patient using ABCDE primary survey
- Identify the major problems and perform immediate interventions as needed, including oxygen and rapid transport
- Implement the appropriate protocols, pharmacology and skills
- If in doubt about the exact diagnosis and the specific treatment required, give basic supportive measures such as ABC, oxygen, etc and transport rapidly to hospital
- Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration and response to therapy or the development of new problems

4. TRANSPORTATION
Time spent on scene must be kept to a MINIMUM. Acutely ill or injured patients should always be mobilised to the appropriate hospital as soon as possible:
• The implementation of protocols should not interfere with expeditious transport to hospital. Protocol treatment can be carried out en route to ensure minimum delay at the scene

• With the exception of non-traumatic cardiac arrest, if the arrival time of back up exceeds the load and transport time in urgent situations, transport to the appropriate hospital. The efficient delivery of a Code 3, to the Control Centre, will provide relevant information for the receiving hospital, and allow assembly of an appropriate receiving medical team

5. REASSURANCE
Reassurance is an essential component of pre-hospital care and the value of consistently reassuring the conscious patient cannot be over emphasised. The best type of reassurance is calm, efficient and confident delivery of treatment

6. ACCOUNTABILITY AND RESPONSIBILITY
Accountability and responsibility are values that underpin the Ambulance Service Code of Conduct and are described in that code under “Personal and Professional Behaviour”

Each paramedic’s professional and legal responsibilities are underpinned by:
• Comprehensive documentation on the Patient Health Care Record (PHCR,eMR)
• Compliance with Standard Operating Policies (SOPs)
• Compliance with clinical protocols, pharmacology, skills and procedures
1. **TAKE APPROPRIATE EQUIPMENT TO THE PATIENT**
   Respond to the patient with the following minimum equipment set:
   - Oxygen kit, drug kit and monitor/defibrillator
   - Depending on the specific nature of the call consideration should be given to additional equipment, eg first aid kit, maternity kit

2. **ARREST LIFE THREATENING HAEMORRHAGE**
   - Direct pressure on the bleeding site
   - Elevation
   - Arterial tourniquet
   - Pelvic splinting

3. **PRIMARY SURVEY: ABCDE**
   The primary survey is a systematic examination concerned with the early recognition of illness in ALL patients, some who may not be obviously unwell. Accurately measuring and recording of physiological observations, especially respiration rate and radial pulse rate will discriminate sick patients from well patients. The primary survey adopts a “treat as you go” approach where problems are identified and treatment and care are initiated immediately, despite appearance. An efficient primary survey takes approximately 90 seconds

   The primary survey consists of:
   - A airway
   - B breathing
   - C circulation
   - D dysfunction/disability
   - E exposure & environment

<table>
<thead>
<tr>
<th>Key Area</th>
<th>How to Assess...</th>
</tr>
</thead>
</table>
| **Airway** + spinal control if required | ✓ Check consciousness  
   ✓ Assess ability to take a deep breath  
   ✓ Assess ability to speak in a full sentence  
   (measure in ‘word’, ‘phrase’ or ‘sentence’) |
| **Breathing**             | ✓ Look, listen & feel  
   ✓ Accurately count respiratory rate (15 seconds X 4)  
   ✓ Assess work of breathing (effort & efficacy)  
   ✓ Auscultate chest for breath sounds |
### Circulation + haemorrhage control
- Examine for life-threatening haemorrhage
- Assess peripheral & central perfusion
  - Skin temperature
  - Skin colour
  - Central and peripheral cap refill
  - Pulse volume & rhythm
- Accurately count pulse rate (15 seconds X 4)

### Disability (neuro)
- Measure LOC (AVPU or GCS)
- Check pupil size & function
- Assess the ability to walk
- Assess the ability to move limbs

### Exposure / Environment
- Expose the patient
  - Rash
  - Haemorrhage
  - Contusion
  - Wounds
- Temperature
  - <36.0°C or >38.5°C

### Key Area

### How to Assess...

4. **OXYGEN**

5. **POSTURE**

6. **SECONDARY SURVEY**

7. **APPLY MONITORING ADJUNCTS**
   - On scene and during transport:
     - Pulse oximetry
     - ECG – acquisition of the 12 lead ECG or rhythm strip
     - End tidal CO₂ where appropriate

8. **MENTAL HEALTH ASSESSMENT** where indicated (see protocol S3)

9. **SPECIFIC TREATMENT** according to protocol and pharmacology
10. **REGULARLY REASSESS PATIENT** to identify clinical changes; particularly deteriorating physiological trends, or entry into yellow zone (clinical review) or red zone (emergency response) criteria

   - Respiration rate
   - Pulse rate
   - SpO₂
   - Temperature
   - ECG
   - Pain score

11. **DOCUMENTATION**

    A comprehensive patient health care record is required for all patient contacts. This includes **any incident** that results in non-transport following patient contact and visual, verbal or physical assessment

    Any patient that requests transport **MUST** be transported

    All advice given by paramedics is to be **CLINICAL** advice
Due to the variety of needs among patients, there is a requirement for suitable guidelines to allow both urgent and non-urgent patients to be taken to the most appropriate hospitals.

1. URGENT TRANSPORT
   Certain life-threatening conditions require minimal on-scene time and urgent transport to hospital for immediate definitive treatment. These include:

   A. Unrelieved Upper Airway Obstruction
      Examples include:
      • Burns
      • Epiglottitis
      • Foreign bodies

   B. Severe Breathing Problems
      Examples include:
      • Chest injuries with deterioration
      • Severe pulmonary oedema
      • Asthma or Chronic Obstructive Pulmonary Disease (COPD) unresponsive to treatment

   C. Severe Circulatory Problems
      Examples include:
      • Uncontrollable haemorrhage
      • Penetrating trauma (excluding isolated injury to hands and feet)
      • Severe shock of any type
      • Dysrhythmias with poor perfusion
      • Cardiac arrest
      • Return of spontaneous circulation following cardiac arrest

   D. Depressed LOC
      If level of consciousness V, P, or U
      Examples include:
      • Head injuries
      • Overdose unresponsive to naloxone
      • Uncontrolled fitting

   E. Emergency of Other Types
      Examples include:
      • Prolapsed umbilical cord
      • Severe poisoning
Emergency of Other Types continued
- Uncontrolled severe pain
- Acute coronary syndrome
- Gastrointestinal haemorrhage
- Eye injuries, penetrating or chemical
- Stroke or sudden onset headache or neurological deficit
- Fever with lethargy

2. TRAUMATIC INJURIES – Protocol T1

3. MEDICAL EMERGENCIES
   These can be treated at all hospitals although paramedics should be
   aware of the specific capabilities and limitations (eg, trauma bypass, no
   Doctor) of hospitals in their area

4. TREATMENT
   Each circumstance must be assessed on its merits. Factors to be
   considered are:
   - The severity of the emergency
   - The time taken to extricate and load the patient into the ambulance
   - Whether or not the circumstance results from a traumatic injury or
     medical emergency

   In general, the only procedures that should be considered at the scene
   are:
   - ABC including AIRWAY MANAGEMENT, INITIATION OF CPR and
     DEFIBRILLATION
   - Initiation of HAEMORRHAGE CONTROL

   ALL OTHER TREATMENT should be given en route

   In circumstances where the load and transport time to hospital is very
   short a “scoop and run” approach with treatment en route should be
   implemented

   Ask the Control Centre to notify the receiving hospital as soon as possible
   via a Code 3

   This is particularly important for patients with PENETRATING TRAUMA to
   the torso or UNCONTROLLABLE HAEMORRHAGE, as the patient may die
   if urgent surgical intervention is delayed
5. NON-URGENT TRANSPORT

Chronic Illness

These patients are best managed at their usual treatment hospital and should be transported to there, regardless of hospital status

These groups are:
- Past organ transplant (or on waiting list) – kidney, liver, heart, lung or pancreas
- Chronic renal failure of patients on haemodialysis, or with a peritoneal dialysis related problem

**Allocation of patients according to needs and hospital availability:**
Consult with Control Centre prior to departing scene to establish most appropriate hospital

**As a general rule, patients should not bypass more than two hospitals or be transported greater than 60 minutes drive in urban areas:** This however does not preclude paramedics from doing so if there are valid reasons

Record reason(s) for transport decision on PHCR

**Patient’s Request**
Requests by patients to be transported to a specific hospital should be considered by the paramedic

Appropriate reasons to consider a patient’s destination request would include when transport to a distant hospitals would place unreasonable stresses on a patient’s family however, **not** when the choice is purely a matter of patient preference

Potential adverse effects on ambulance resources should be considered:
- When transporting to a hospital an unreasonable distance away
- When transporting to a hospital on diversion when the patient could comfortably travel further to receive treatment
This protocol outlines the specific pain management options and the necessary treatment regimes to ensure the relief of pain in the pre-hospital setting.

1. PROTOCOL F2 – including primary survey (ABCDE)
   Not all patients require drug therapy for pain relief: consider non-pharmacological treatments, i.e.
   • Posture
   • Oxygen
   • Cooling with large amounts of cool/tepid water in burns for at least 20 minutes
   • Eye irrigation for injury due to chemical burns or smoke irritation
   • Cold pack for redback spider bites and scorpion/centipede/insect bites/sprains/strains
   • Tolerable hot water for “barbed” marine creatures and some jellyfish stings (apply ice packs if hot water not available)
   • Immobilisation and splinting for suspected musculoskeletal injuries

2. PHARMACOLOGICAL OPTIONS
   An opioid is the preferred medication therapy for patients with moderate to severe pain. Methoxyflurane is reserved for situations where the administration of an opioid is not authorised, contraindicated or in special circumstances (eg difficult access, multi-victim situations):

   MODERATE TO SEVERE PAIN IN ADULTS
   • MORPHINE – first choice
   • FENTANYL – second choice – if unable to cannulate or contraindications to morphine

   MODERATE TO SEVERE PAIN IN CHILDREN
   • FENTANYL – first choice
   • MORPHINE – second choice if fentanyl ineffective or contraindications to fentanyl

   MILD PAIN IN ADULTS
   • PARACETAMOL
   • METHOXYFLURANE

3. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
This protocol is for use in any patient when behavioural control is necessary to facilitate specific treatment and prevent injuries to themselves or others. This particularly refers to behaviourally disturbed, drug affected or mental health patients, aggressive and combative head injured patients without hypoxia who are clinically difficult to manage.

The use of sedation and restraint may be necessary to facilitate assessment, treatment or safe transport to an appropriate facility. This should be achieved in the least restrictive manner for the shortest duration possible according to the level of risk.

The patient should be monitored, with repeated observation and documentation of ABCD at all times and every effort made to maintain the patient’s privacy and dignity.

1. PROTOCOL F2 – including primary survey (ABCDE)
   - Safety of the paramedic, patient and bystanders are the key priorities
   - Always consider organic causes of behavioural emergency (hypoxia, hypoglycaemia etc)

2. If appropriate, assess patient as per MENTAL HEALTH EMERGENCY PROTOCOL S3

   SECTION 20 MENTAL HEALTH ACT 2007
   If the patient has been detained under Section 20 of the Mental Health Act 2007 you must complete a Section 20 form.

3. Consider PHYSICAL CONTROL
   - Police assistance should be requested in all situations where physical restraint is required

4. Consider MECHANICAL RESTRAINT – if available. May only be used by appropriately trained paramedics

5. MIDAZOLAM (pharmacological control/sedation)
   - The aim of sedation in head injured and behaviourally disturbed patients due to any cause is to reduce the risk of harm and to facilitate assessment, treatment and transport to hospital
• Sedation should always be titrated to the point of rousable sleep only, not unconsciousness, except for restless or agitated patients post intubation.
• Restraint or sedation must only be used in the best interests of patient care

Level 4 paramedics are authorised to administer this protocol after completion of P1 training
Establishing the competency and capacity of a patient or person responsible prior to seeking consent is a critical part of pre-hospital management of both emergency and low acuity situations.

1. COMPETENCY
   • Competency refers to a person’s status, under law, to be able to make a decision about their healthcare and well-being
   • Competency is demonstrated in patients without chronic compromise of neurological function such as:
     • Intellectual impairment
     • Profound dementia
     • Mental illness

2. CAPACITY
   • Capacity refers to the patient’s acute ability to make a decision about their healthcare or treatment at the time of assessment
   • A usually competent person may lack capacity due to a range of circumstances such as:
     • Unconscious or altered level of consciousness
     • Head injury
     • High levels of intoxication
     • Currently under the influence of other licit or illicit substances

3. CONSENT
   • The criteria for valid consent are:
     • The consent is given freely
     • The consent is given voluntarily
     • The patient is demonstrated to be competent and have the capacity to give consent
     • The consent is specific and informed
   • The three types of consent are:
     • Expressed (written or verbal)
     • Implied
     • Person responsible

4. WHEN CONSENT IS NOT REQUIRED
   • Consent is not required in an emergency, where the patient is unable to give consent and the treatment is required immediately:
     • to save the person’s life; or
to prevent serious injury to a person’s health; or except in the case of special medical treatment, to prevent the patient from suffering or continuing to suffer significant pain or distress

5. CHILDREN AND YOUNG PERSONS

- Emergency Treatment may be carried out on a child (person aged under 16 years) or young person (person aged 16 or 17) without the consent of the child, young person or parent if the paramedic is of the opinion that it is necessary, as a matter of urgency, to carry out the treatment on the child or young person in order to save his or her life, or to prevent serious damage to his or her health. This is pursuant to section 174 of the Children and Young Persons (Care and Protection) Act 1998

- Non Emergency Treatment may be carried out on a person aged under 14 years with the consent of a parent and/or person responsible only. A child aged 14 years and above may consent to their treatment provided they have demonstrated capacity and competency. When a child is aged 14 or 15 years it is prudent where possible to obtain the consent of the child’s parent or guardian prior to any treatment unless the child objects

6. DOCUMENTATION must be clear and precise and is especially important when the patient is not transported to definitive care. Documentation must show the patient was competent and had the capacity to consent or refuse treatment and transport from the paramedic

Documentation must make specific reference to the following in order to demonstrate the patient was competent and had capacity:

- **Receive:** Can the patient listen and concentrate sufficiently to receive the information being disclosed to them?
- **Believe:** Can the patient understand, accept and believe the information being disclosed to them?
- **Retain:** Can the patient remember the information being disclosed for long enough to consider and analyse? Do they demonstrate the ability to remember information after the paramedic has left the scene?
- **Explain:** Can the patient explain the information they have received and the risks involved with non-transport in their own words?
Abdominal pain is a common complaint seen by paramedics and may be the result of either an underlying medical condition or trauma. The assessment of abdominal conditions may be very difficult as patients can present with non-specific pain or with diverse/vague symptoms which may represent a serious underlying condition such as appendicitis, renal colic, or blunt trauma with underlying blood loss. The history, location, onset and nature of the pain and associated symptoms may point to the possible cause.

1. **PROTOCOL F2** – including primary survey (ABCDE)

2. Treat **ASSOCIATED CONDITIONS if present**
   Consider particularly (especially in children):
   - DEHYDRATION
   - HYPOVOLAEMIA

3. **PAIN MANAGEMENT**

4. **COVER OPEN WOUNDS** and protruding viscera with a sterile saline moistened dressing

5. **URGENT TRANSPORT**
   Urgent Transport is essential for:
   - Penetrating injuries
   - Hypovolaemic shock
   - Unrelieved pain (especially in children)

6. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
A foreign body airway obstruction (FBAO) is a life-threatening emergency. Chest thrusts and back blows are effective for relieving FBAO in conscious patients > 1 year of age.

1. **PROTOCOL F2** including primary survey (ABCDE)

2. **ASSESS SEVERITY OF FBAO:**
   - **Effective cough:** Indicated by patients who are able to speak, cough and breathe. An effective cough indicates a mild airway obstruction. Patients should be encouraged to continue coughing to expel the foreign material. Transport patient to hospital with high flow oxygen
   - **Ineffective cough:** Indicated by patients who are unable to speak, breathe effectively and/or have wheezy/noisy breathing, attempts at coughing may be silent or have little air movement. An ineffective cough indicates a severe FBAO and requires immediate treatment

3. **FOLLOW FBAO ALGORITHM**

   **ASSESS SEVERITY FBAO**

   **INEFFECTIVE COUGH**
   - **SEVERE FBAO**
     - Is the Pt conscious?
     - **NO**
       - Extricate the foreign body – with a laryngoscope and Magill forceps
       - If this fails commence CPR
       - URGENT TRANSPORT
     - **YES**
       - Administer up to five sharp back blows – position with head down to utilise gravity
       - If back blows fail administer up to five chest thrusts
       - If both fail administer 100% oxygen and continue to alternate back blows with chest thrusts
       - URGENT TRANSPORT

   **EFFECTIVE COUGH**
   - **Mild FBAO**
     - Encourage coughing to expel foreign body
     - High flow oxygen
     - Transport to ED

Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
**ASTHMA**

**PROTOCOL M4**

**PROTOCOL F2**

Is there a high probability of ASTHMA?

- **NO**
  - Consider alternate diagnosis

- **YES**
  - Assess severity

**SEVERE / LIFE THREATENING**
- Decreased LOC or Minimal air movement

**ADRENALINE**

- Expiratory assistance if indicated

**URGENT TRANSPORT**

- Has the Pt improved?
  - **NO**
    - CONTINUE TRANSPORT
      - Continue treatment as indicated
  - **YES**
    - TRANSPORT to hospital

**MODERATE**

**SALBUTAMOL**

**IPRATROPIUM BROMIDE**

**RECOMMEND TRANSPORT**

- Has Pt accepted Transport?
  - **YES**
    - TRANSPORT
      - Continue treatment as indicated
  - **NO**
    - EXPLAIN RISKS TO Pt
      - Confirm competency and capacity Protocol F6

**MILD**

**SALBUTAMOL**

**IPRATROPIUM BROMIDE**

**Protocol P5**

**P5 PROTOCOL SPECIFIC EXCLUSION CRITERIA**
- Initial moderate or severe / life threatening presentation
- Previous intubation / ICU admission for asthma
- Initial PEFR <75% predicted or known physiological value
- Concurrent respiratory illness
- Bilateral crepitations on auscultation
- History of COPD or heart failure
- Nil improvement in PEFR and / or symptomatic post treatment
- No access to self – administered bronchodilator
- Pregnancy

**HIGH PROBABILITY OF ASTHMA**
- History of asthma, exposure to triggers, age <50, evidence of bronchoconstriction.

**IF SEVERE / LIFE THREATENING**
- Check for pneumothorax / tension pneumothorax
- Consider expiratory assistance if severe/life threatening
- If hypo-ventilating ventilate at 6 breaths/ min and reduce tidal volume

**EXPLANATION**
- Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

---

Note: The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services

Last Issued: July 2009
Revised: January 2011
Asthma is a chronic inflammatory disorder of the airways. This inflammation causes recurrent episodes of wheezing, breathlessness, chest tightness and coughing, particularly at night or in the early morning. These episodes are usually associated with widespread but variable airflow obstruction that is often reversible. The inflammation also causes worsening of bronchial hyper-responsiveness to a variety of stimuli.

Airflow obstruction (excessive airway narrowing) in asthma is the result of contraction of the airway smooth muscle and swelling of the airways. Potential triggers for the inflammatory process in asthma include allergy, viral respiratory infections, gastro-oesophageal reflux, irritants such as tobacco smoke, air pollutants and occupational dusts, gases and chemicals, certain drugs, and non-specific stimuli such as cold air exposure and exercise.

1. PROTOCOL F2 – including primary survey (ABCDE)
- Administer oxygen to ensure SpO\textsubscript{2} > 94%
- Check for pneumothorax / tension pneumothorax if deteriorating
- Check if patient has asthma management plan
- Assess severity (including peak expiratory flow)

### Asthma severity assessment: Patients ≥ 16 years old

<table>
<thead>
<tr>
<th>SYMPTOMS</th>
<th>MILD</th>
<th>MODERATE</th>
<th>SEVERE / LIFE THREATENING*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical exhaustion</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Paradoxical chest movement may be present</td>
</tr>
<tr>
<td>Talks in</td>
<td>Sentences</td>
<td>Phrases</td>
<td>Words</td>
</tr>
<tr>
<td>Heart Rate</td>
<td>&lt; 100/min</td>
<td>100-120/min</td>
<td>&gt;120/min\textsuperscript{†}</td>
</tr>
<tr>
<td>Central cyanosis</td>
<td>Absent</td>
<td>May be present</td>
<td>Likely to be present</td>
</tr>
<tr>
<td>Wheeze intensity</td>
<td>Variable</td>
<td>Moderate to Loud</td>
<td>Often quiet</td>
</tr>
<tr>
<td>PEF</td>
<td>&gt; 75% predicted (or best if known)</td>
<td>50-75% predicted (or best if known)</td>
<td>&lt;50% predicted (or best if known) or less than 100L/min\textsuperscript{#}</td>
</tr>
<tr>
<td>Oximetry on presentation</td>
<td>Less than 90%</td>
<td></td>
<td>Cyanosis may be present</td>
</tr>
</tbody>
</table>

*Any of these features indicates that the episode is severe. The absence of any feature does not exclude a severe attack. \textsuperscript{†} Bradycardia may be seen when respiratory arrest is imminent. \textsuperscript{#} May be incapable of performing test
### Asthma severity assessment: Patients ≤ 16 years old

<table>
<thead>
<tr>
<th>SYMPTOMS</th>
<th>MILD</th>
<th>MODERATE</th>
<th>SEVERE / LIFE THREATENING*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altered LOC</td>
<td>No</td>
<td>No</td>
<td>Agitated, Confused &amp; Drowsy</td>
</tr>
<tr>
<td>Talks in</td>
<td>Sentences</td>
<td>Phrases</td>
<td>Words, Unable to speak</td>
</tr>
<tr>
<td>Heart Rate</td>
<td>&lt;100/min</td>
<td>100-200/min</td>
<td>&gt;200/min†</td>
</tr>
<tr>
<td>Central cyanosis</td>
<td>Absent</td>
<td>Absent</td>
<td>Likely to be present</td>
</tr>
<tr>
<td>Wheeze intensity</td>
<td>Variable</td>
<td>Moderate to loud</td>
<td>Often quiet</td>
</tr>
<tr>
<td>PEF**</td>
<td>&gt; 60% predicted (or best if known)</td>
<td>40-60% predicted (or best if known)</td>
<td>&lt;40% predicted (or best if known) or unable to perform</td>
</tr>
<tr>
<td>Oximetry on presentation</td>
<td>94%</td>
<td>94-90%</td>
<td>&lt;90%</td>
</tr>
</tbody>
</table>

*Any of these features indicates that the episode is severe. The absence of any feature does not exclude a severe attack. †Bradycardia may be seen when respiratory arrest is imminent. ‡May be incapable of performing test **Children under 7 years old are unlikely to perform PEF or spirometry reliably during an acute episode.

2. **SALBUTAMOL** and **IPRATROPIUM BROMIDE**

3. **ADRENALINE** if condition is severe / life threatening

4. **EXPIRATORY ASSISTANCE** should be considered if condition remains severe / life threatening despite adrenaline

5. **DETERMINE APPROPRIATE DISPOSITION FOR PATIENT:**
   - **URGENT TRANSPORT** for patients with severe / life threatening symptoms
   - **NON TRANSPORT RECOMMENDED (Protocol P5)** for patients with mild symptoms responsive to treatment with no generic or P5 protocol specific exclusions
   - **RECOMMEND TRANSPORT** for all other patients

6. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
P5 Protocol specific exclusions:
- Initial moderate or severe/life threatening presentation
- Previous intubation/ICU admission for asthma
- Initial PEFR <75% predicted or known physiological value
- Concurrent respiratory illness
- Bilateral crepitations on auscultation
- History of COPD or heart failure
- Nil improvement in PEFR and/or symptomatic post – treatment
- No access to self – administered bronchodilator
- Pregnancy

Analgesics and sedatives must not be given to people with asthma who are in respiratory distress

All patients with asthma should receive high flow oxygen
Oxygen saturations are **NOT** a substitute for respiratory rate measurement
Patients displaying a decreased level of consciousness present paramedics with additional challenges. Altered level of consciousness may be caused as a result of trauma i.e. head injury, drug overdose, poisoning, or through an underlying medical emergency, eg hypoglycaemia, stroke, epilepsy etc.

1. **PROTOCOL F2** – including primary survey (ABCDE)

2. **CERVICAL COLLAR** if cervical spine injury is suspected

3. Treat **SPECIFIC CAUSES** if present:
   - Hypo/hyperglycaemia
   - Narcotic overdose

4. **URGENT TRANSPORT**

5. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
Vomiting is a defence mechanism and can be caused as a result of irritation of the stomach, infection, increased intracranial pressure (head injury, meningitis), and CNS stimulation. Not all nausea and vomiting requires treatment. If the patient has moderate or severe symptoms an antiemetic may provide symptom relief.

1. **PROTOCOL F2** – including primary survey (ABCDE)

2. **ANTIEMETIC**

3. Treat **ASSOCIATION CONDITIONS** if present:
   - Dehydration
   - Hypovolaemia

4. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

Vomiting in paediatric patients rarely requires treatment, however if an antiemetic is required administer ondansetron

Ondansetron may be an alternative in patients with a history of allergy or dystonic reactions and/or are unresponsive to metoclopramide
Croup has been identified as an acute clinical syndrome with inspiratory stridor, a barking cough, hoarseness, dyspnoea and tachypnoea resulting from obstruction of the larynx.

THE SIGNS OF SEVERE CROUP ARE ANY TWO OF MORE OF:

- Stridor – at rest
- Altered LOC, agitation or lethargy
- Retractions – subcostal, intercostal or sternal
- Cyanosis
- Nasal flaring
- Tracheal tug
- Grunting respirations

1. PROTOCOL F2 – including primary survey (ABCDE)
   - If the clinical condition is made worse, or the child is more distressed by being strapped to the stretcher, they should be kept sitting up on the carer's lap throughout the entire transport to hospital
   - The carer should hold a high flow therapy mask as close to the child’s face as he/she will tolerate

2. NEBULISED ADRENALINE (1:1,000) if ANY two or more signs of severe croup are present

3. URGENT TRANSPORT

4. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
Common causes of dehydration include lack of mobility, confusion, coma etc or increased loss of fluid through vomiting, diarrhoea, diuresis and profuse sweating. Signs and symptoms of clinical dehydration include:

- Dry mucosa and axilla
- Postural hypotension
- Signs and symptoms of hypovolaemia (tachycardia, hypotension)

Skin tenting has no real value as a sign of dehydration in patients’ ≤ 16 years of age.

The treatment of dehydration requires a gradual replacement of fluid deficit, although being aware that some patients may need fluid resuscitation. Not all patients with dehydration require IV administration of fluids.

1. **PROTOCOL F2** – including primary survey (ABCDE)

2. If **COOPERATIVE** and able to swallow give **FLUIDS** orally

3. Treat **ASSOCIATION CONDITIONS** if present:
   - Hypovolaemia
   - Nausea & vomiting
   - Hypo/hyperglycaemia

4. **HARTMANN’S**

5. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
A seizure or fit is a period of involuntary muscular contraction. The most common presentations encountered are partial or generalised seizures. Seizures may occur spontaneously in epileptics or may occur as a result of infection, pyrexia, head injury, cerebral tumours and drug overdose or electrolyte imbalance. Post ictal patients should be provided with the opportunity to recover on scene. Many post ictal patients will regain full cognitive function within a reasonable time frame.

1. **PROTOCOL F2** – including primary survey (ABCDE)
2. **PROTECT** the patient from injury
3. **MIDAZOLAM** if duration of seizure is ≥ 5 minutes
4. Treat **ASSOCIATED CONDITIONS**:
   - Hypoglycaemia
   - Hyperthermia
   - Traumatic injuries
5. **DETERMINE APPROPRIATE DISPOSITION FOR PATIENT**:
   - **URGENT TRANSPORT** for patients with recurrent or continuous seizures
   - **NON TRANSPORT RECOMMENDED (Protocol P5)** for post ictal patients with no generic or P5 protocol specific exclusion criteria
   - **RECOMMEND TRANSPORT** for all other patients
6. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

### P5 protocol specific exclusions:
- Alone / no carer
- Concurrent acute illness
- First seizure presentation
- History of multi-seizure presentations
- History of recent traumatic brain injury
- Increased frequency of seizures
- Suspicion of overdose / aspiration
- Unwitnessed seizure
- Pregnancy
- Intoxication
- Seizure type / pattern differing to usual presentation
- Seizure involving submersion
HYPOTHYROIDISM/HYPERPYRAMIDISM

HYPO/HYPERGLYCAEMIA

Hypo/hyperglycaemia may be due to a low or high blood glucose level (BGL). Hyperglycaemia can be a life threatening condition which can be caused by failure to take insulin or by infection, trauma or other stresses that may increase the body’s need for insulin. An imbalance of BGL in diabetic patients can lead to hypoglycaemia (<4mmol/L) or hyperglycaemia (>17mmol/L).

1. PROTOCOL F2 – including primary survey (ABCDE)

2. CHECK BLOOD GLUCOSE LEVEL
   - If ≤4mmol/L and symptomatic:
     - Patient is COOPERATIVE and able to swallow give oral GLUCOSE GEL
     - Patient has ALTERED LOC administer GLUCOSE 10% or GLUCAGON.
     - If ≥17mmol/L with signs of dehydration, eg dry mouth, ↓ urine output and ↑ thirst, present:
       - HARTMANN'S

3. Treat SPECIFIC CONDITIONS if present:
   - Hypovolaemia
   - Acute Coronary Syndrome
   - Hypothermia / Hyperthermia

4. DETERMINE APPROPRIATE DISPOSITION FOR PATIENT:
   - URGENT TRANSPORT if unresponsive to treatment
   - NON TRANSPORT RECOMMENDED (Protocol P5) for hypoglycaemic patients responsive to treatment with no generic or P5 protocol specific exclusion criteria
   - RECOMMEND TRANSPORT for all other patients

5. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

P5 Protocol specific exclusions:
- Alone / no carer
- Unable / unwilling to eat
- Pregnancy
- Hyperglycaemia

10% Glucose IN ALCOHOLICS – triage should be notified that a high glucose load has been administered as thiamine administration may be necessary to prevent the precipitation of acute Wernicke’s encephalopathy

Note: The most current version of this document is available on the ASNSW Intranet site.
PROTOCOL DELETED

RATIONALE: Protocol M12 has been deleted. Non cardiac chest pain contained no specific treatment regime relating to non cardiac chest pain. Whilst there are non cardiac causes of chest pain, the exclusion of cardiac causes of chest pain cannot be readily achieved in the pre hospital environment. Chest pain in the absence of trauma should be treated as suspected acute coronary syndrome which is detailed in protocol C1.
Paramedics need to maintain a high level of suspicion for patients meeting SERIOUS assessment criteria as the symptoms and signs of meningococcal septicaemia (meningococcaemia) can occur suddenly and may progress rapidly. These include fever, chills, nausea and vomiting, leg pain and may be accompanied with a haemorrhagic (purpuric) rash which can be difficult to detect. Onset may be as subtle as ‘flu like illness’ with rapid progression of symptoms or failure to respond to symptom relieving medications. Early, medium and late symptoms and signs include:

**Early**
- Fever
- Irritability
- Nausea & vomiting
- Headache
- Poor appetite
- Sore throat

**Medium**
- Drowsiness
- Cold hands and feet
- General aches
- Leg pain

**Late**
- Haemorrhagic rash
- Neck pain or stiffness
- Confusion or delirium
- Photophobia

The early administration of antibiotics in suspected cases of meningococcal septicaemia can be life saving

In children, parents may notice laboured breathing and an unwillingness of the child to make eye contact

Cold or cyanotic extremities and pallor in the presence of fever are key signs of the onset of septic shock. In severe septic shock, fever may be absent and hypothermia may be present

1. **PROTOCOL F2** – including primary assessment (ABCDE)
   - Exposure of the patient is imperative as the presence of **ANY RASH** coupled with other symptoms and signs may be indicative of meningococcal septicaemia
   - Secondary assessment to include recording of patient’s temperature and details of recent sick contacts, particularly if suffering from meningococcal disease

---

Note: The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services

Last Issued: November 2006
Revised: January 2011

Page 1 of 2
2. SPECIFIC MANAGEMENT

Clinical suspicion of meningococcal septicaemia or disease

RED emergency response criteria with or without any rash

ASSESS PATIENT

YELLOW clinical review criteria with or without any rash

HARTMANN’S (hypovolaemia)

BENZYL PENICILLIN

Urgent Transport
Notify receiving hospital en route via Control Centre

HARTMANN’S (fluid replacement)

TRANSPORT

3. Treat ASSOCIATED CONDITIONS if present:

- Fitting
- Vomiting
- Dehydration
- Altered LOC
- Hypotension

4. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

Basic personal protective equipment is recommended
Gloves, mask and eyewear should be worn

Issue a Septic Shock Advisory Card immediately on arrival to hospital
Tachypnoea is a very important clinical sign of illness. Respiratory rate is the most sensitive marker of critical illness and high respiratory rates have been known to predict intensive care unit admission and cardiac arrest. Increased work of breathing includes tachypnoea, but also includes intercostal and subcostal recession, accessory muscle use and head nodding. These signs are also vital to assess in respiratory distress. Hyperventilation due to anxiety and emotional distress may cause faintness, tingling around the mouth and extremities, or carpo-pedal spasm due to low PCO₂.

1. **PROTOCOL F2** – including primary survey (ABCDE)

2. **LIFE THREATENING CONDITIONS**
   Rapid or deep breathing may be a sign of serious illness. Consider life threatening causes of tachypnoea:
   - Asthma
   - Cardiac dysrhythmias
   - Drug overdose
   - Fever and infection
   - Head injury
   - Chronic obstructive pulmonary disease

3. **TREAT LIFE THREATENING CONDITIONS IF PRESENT**
   High flow oxygen, cannulation and urgent transport with repeated and documented observations

4. **REVERSIBLE CONDITIONS**
   If serious illness has been excluded consider reversible causes of tachypnoea:
   - Anxiety
   - Emotional distress
   - Exercise
   - Pain

   **CALM** the patient and encourage slow breathing
   **REBREATHE** expired air from an oxygen mask connected at 2L/min

5. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
Autonomic dysreflexia, also known as “hyperreflexia”, is a medical emergency that may occur in patients with pre-existing spinal cord injury at T6 level or above. The condition occurs as a result of a massive, uncompensated cardiovascular reaction of the sympathetic nervous system triggered by an irritating stimulus below the level of injury.

May present with:

- Sudden hypertension
- Pounding headache
- Bradycardia
- Sweating and flushing above the level of injury
- Skin pallor and goose flesh below the level of injury
- Shortness of breath and associated anxiety

1. **PROTOCOL F2** – including primary survey (ABCDE)
   - Posture the patient sitting with legs dependent
   - Loosen tight clothing (e.g., compression stocking, abdominal binder)
   - Monitor blood pressure closely (every 2-3 min)

2. Look for reversible causes (often related to the urinary system)
   - Is the catheter draining? Check the catheter tube is not kinked or blocked or the leg bag over-full. (Avoid pressing on the bladder)

3. **GLYCERYL TRINITRATE** when either systolic blood pressure $\geq 20$ mmHg above resting level (if known) OR systolic blood pressure $\geq 170$ mmHg

4. **URGENT TRANSPORT** is essential if:
   - Altered LOC
   - Signs of stroke – facial droop, arm weakness, speech abnormalities
   - Persistent hypertension despite treatment

5. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

The use of drugs for erectile dysfunction is common in patients with spinal cord injury. Do not use GTN spray, tablets or patch if the following have been taken: sildenafil (Viagra) within 12 hours, vardenafil (Levitra), or other PDE 5 inhibitor (nitric oxide enhancer) within 24 hours, or tadalafil (Cialis) within three days. Transport is required even if the symptoms are relieved with or without treatment with **GLYCERYL TRINITRATE**.
CONFIRMATION OF CLINICAL PROBABILITY OF ANAPHYLAXIS
Establish history of exposure to known or suspected allergens eg
- Medications
- Food types
- Insect bites/stings
Treat associated conditions
- Bronchospasm
- Hypovolaemia
- Cardiac arrest

BACKGROUND
Allergic reactions occur in a spectrum from mild urticaria to major pulmonary and/or cardiovascular compromise. Anaphylaxis is an acute life threatening response in patients previously sensitised to an allergen.

- It is vital to first perform a full PRIMARY SURVEY of any patient suspected of having an anaphylactic or allergic reaction, to detect any life-threatening features of those that need immediate intervention to prevent deterioration

ASSESS SEVERITY

MILD
NO ABCD symptoms/signs
NO systemic features
ie urticaria/rash only
FEXOFENADINE
Transport

MODERATE OR SEVERE
ANY ABCD SYMPTOMS/ SIGNS OR SYSTEMIC FEATURES
ADRENALINE
Repeat if indications persist
URGENT TRANSPORT

Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
• **IM ADRENALINE** is the front line treatment for **ALL** patients with moderate to severe anaphylactic and allergic reactions

CONFIRM CLINICAL PROBABILITY OF ANAPHYLAXIS
• Establish a history of exposure to possible substance known to cause anaphylactic reaction, eg medication, exposure to food, recent insect bite, and presenting with any evidence of systemic involvement

ASSESSMENT OF SYSTEMIC INVOLVEMENT
Severe (potentially life threatening) signs and symptoms

• **Airway involvement**
  • Swelling of tongue or lips
  • Change in voice (signs of laryngeal oedema)
  • Difficulty swallowing
  • Stridor

• **Breathing**
  • Tachypnoea
  • Respiratory distress
  • Dyspnoea
  • Wheeze

• **Circulation**
  • Tachycardia
  • Poor or inadequate skin perfusion
  • Hypotension

• **Disability**
  • Restlessness
  • Altered LOC
  • Confusion

Other signs of moderate to severe anaphylaxis include:
• Sweating, nausea, vomiting, abdominal pain, incontinence

Urticaria / rash in isolation, ie no ABCD or other systemic symptoms, can be treated with oral Fexofenadine, minimally sedating anti-histamine

Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
ADRENALINE IS INDICATED WHEN ANAPHYLAXIS OR ALLERGY IS SUSPECTED AND ANY ABCD SYMPTOM / SIGN IS PRESENT OR THERE IS EVIDENCE OF SYSTEMIC FEATURES CONSISTENT WITH MODERATE / SEVERE ALLERGIC REACTION

IM ADRENALINE IS THE FIRSTLINE TREATMENT AND IS VERY SAFE

IM ADRENALINE IS UNDERUSED IN THE PREHOSPITAL SETTING

THE POTENTIAL RISKS OF NOT GIVING ADRENALINE FAR OUTWEIGH THE POTENTIAL RISKS OF GIVING ADRENALINE
Nasal haemorrhage is usually controlled well following the application of basic first aid, primarily compression of the nose immediately inferior to the nasal bones. When applied properly over the correct part of the nose, compression of the bleeding vasculature should stop within 15 minutes.

1. **PROTOCOL F2** – including primary survey (ABCDE)

2. **APPLY COMPRESSION** to the nose for at least 15 minutes without release of pressure

3. **DETERMINE APPROPRIATE DISPOSITION FOR PATIENT:**
   - **NON TRANSPORT RECOMMENDED (Protocol P5)** for patients responsive to treatment and no generic or P5 protocol specific exclusion criteria
   - **RECOMMEND TRANSPORT** for all other patients

4. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

**P5 protocol specific exclusions:**
- Unable to arrest haemorrhage after 15 mins
The treatment of dental problems/emergencies is specialised, with local emergency departments limited in the care and treatment they are able to provide to these patients.

Patients presenting to ED with dental problems are typically provided with simple analgesics for pain relief and referral to a dental practitioner. Antibiotic therapy is not commonly prescribed unless specifically indicated by facial swelling / cellulitis, or systemic infection.

1. PROTOCOL F2 – including primary survey (ABCDE)

2. PAIN MANAGEMENT

3. SPECIFIC TREATMENT
   - Dislodged tooth
     - Clean tooth with milk or patient’s saliva
     - Gently replace tooth in cavity ensuring tooth is inserted correctly
     - Immobilise tooth once it is in situ by patient biting down on a piece of gauze
     - If unable to replace tooth, place tooth in container with milk or normal saline 0.9%. Roll gauze and place over socket. Instruct patient not to smoke or spit prior to further treatment
   - Fractured tooth
     - Place tooth segment (if available) in container and cover with milk or normal saline 0.9%. Advise patient not to smoke or spit prior to further treatment

4. DETERMINE APPROPRIATE DISPOSITION FOR PATIENT:
   - RECOMMENDATION FOR TRANSPORT NOT REQUIRED for patients with localised tooth pain and/or access to a dentist and no generic or protocol specific exclusion criteria (Protocol P5)
   - RECOMMEND TRANSPORT for all other patients

5. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

Protocol specific exclusions:
- Facial swelling or cellulitis
- Inability to swallow / tolerate oral fluids
- Suspicion of atypical pain associated with acute coronary syndrome
- Neck pain
Chronic Obstructive Pulmonary Disease (COPD) affects about 1 in 5 Australians over 40 years old, and is mostly caused by smoking. The airways have become narrow and damaged, typically causing breathlessness. COPD has two main types – chronic bronchitis and emphysema, patients with COPD will cough several times and/or bring up phlegm or mucus on most days, and will report breathlessness on exertion.

Exacerbations of COPD are characterised by a marked increase in intensity of symptoms characterised by increased dyspnoea, cough or sputum. Other features indicative of exacerbation which requires transport include:

- No relief from patient’s usual medications
- Inability to walk between rooms when previously mobile
- Inability to perform normal activities eg dressing, bathing
- Fever or chills
- Worsening breathlessness or dyspnoea, especially the inability to eat or sleep because of dyspnoea
- Altered mental status, confusion or lethargy
- Worsening hypoxaemia

1. PROTOCOL F2 – including primary survey (ABCDE)

2. SALBUTAMOL and IPRATROPIUM BROMIDE

3. URGENT TRANSPORT

4. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

   High flow oxygen (>8 L/min) is rarely necessary

   SpO₂ > 92% is unlikely to be of benefit in patients without evidence of acute exacerbation – if patient is on home oxygen their own nasal prongs may be used and oxygen delivery titrated to maintain SpO₂ between 88% and 92%
Gastroenteritis is a common infection of the stomach and intestines that results in diarrhoea and vomiting. It can be caused by a number of different organisms, such as norovirus or rotavirus.

The main symptoms of gastroenteritis are watery diarrhoea and vomiting, which may be violent and profuse. Other symptoms may include nausea, stomach cramps, fever, headache and muscle aches. It typically takes between 15 to 48 hours for symptoms to develop and the illness may last from one to two days or sometimes longer. Abdominal pain which is worsening or becoming constant, makes a diagnosis of gastroenteritis less likely.

The management of patients with diarrhoea and vomiting away from the ED has many benefits, if they are able to tolerate oral fluids.

1. PROTOCOL F2 – including primary survey (ABCDE)

2. Treat ASSOCIATED CONDITIONS: (if present)
   - Hypovolaemia
   - Hypoglycaemia / Hyperglycaemia
   - Dehydration

3. ANTIEMETIC

4. DETERMINE APPROPRIATE DISPOSITION FOR PATIENT:
   - NON TRANSPORT RECOMMENDED (Protocol P5) for patients with vomiting and diarrhoea with no generic or P5 protocol specific exclusion criteria
   - RECOMMEND TRANSPORT for all other patients

5. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

<table>
<thead>
<tr>
<th>P5 protocol specific exclusions:</th>
<th>History of inflammatory bowel disease eg, Crohn’s Disease or ulcerative colitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 65 years old</td>
<td>Inability to tolerate oral fluids</td>
</tr>
<tr>
<td>Absence of diarrhoea</td>
<td>Presence/suspicion of haematemesis</td>
</tr>
<tr>
<td>BGL &gt; 17mmol</td>
<td>Pregnancy</td>
</tr>
<tr>
<td>Clinically obvious dehydration</td>
<td></td>
</tr>
<tr>
<td>Presence/suspicion of blood in</td>
<td></td>
</tr>
<tr>
<td>stools and/or malena</td>
<td></td>
</tr>
<tr>
<td>Symptoms present &gt;12 hours</td>
<td></td>
</tr>
</tbody>
</table>
Acute coronary syndrome (ACS) encompasses a spectrum of conditions from unstable angina to acute myocardial infarction. Time is of the essence in the assessment and treatment of patients due to the high risk of cardiac arrest. Although over 90% of all ACS patients present with chest pain be alert for atypical ACS presentations

1. **BASIC PROTOCOL F2** – including primary assessment (ABCDE)

2. **MONITOR** vital signs and ECG for dysrhythmia and treat per protocol. A 12 lead ECG should be acquired where possible

3. Patients suffering suspected acute coronary syndrome should be administered oxygen therapy and the following as indicated:
   - Aspirin
   - Glyceryl trinitrate
   - Pain management

4. **TRANSPORT** without delay for patients with a suspected high risk ACS

5. **MONITOR THE PATIENT CAREFULLY ENROUTE:** Regularly repeat and document ABCD physical examinations. Physiological observations need to be completed every 15 minutes in order to identify trends in clinical deterioration

6. **PROVIDE A COMPREHENSIVE HANDOVER,** including a completed set of documentation and serial ECGs

---

**If in doubt as to the cause of non traumatic chest pain, treat as suspected acute coronary syndrome**

**Examination of the 3 Lead ECG trace will not allow accurate judgement of the need for a 12 lead ECG to be performed**
RESUSCITATION DECISION ALGORITHM

CONFIRM CARDIAC ARREST
- Pulseless
- Apnoeic

ARE VALID REASONS TO WITHHOLD RESUSCITATION PRESENT?

YES

CONSIDER NOT COMMENCING RESUSCITATION

NO

COMMENCE RESUSCITATION

ARE EXCLUSION CRITERIA PRESENT?

NO

TREAT SUSPECTED REVERSIBLE CAUSES
(IF PRESENT)

CONTINUE RESUSCITATION

PROTOCOL

YES

HAS RESUSCITATION BEEN IN PROGRESS FOR ≥20 MIN?

NOT ASYSTOLE

CONFIRM ECG RHYTHM

ASYSTOLE

URGENT TRANSPORT
Treatment on route

DO NOT CONTINUE RESUSCITATION
PROTOCOL

REASONS TO WITHHOLD RESUSCITATION
- Injuries incompatible with life eg, decapitation, massive cranial and cerebral destruction
- Patient has been deceased for some time evidenced by:
  - Rigor mortis
  - Dependent lividity
  - Tissue decomposition
- End of Life care plan or similar
- Person responsible / Doctor request
- Patients >16 years old with NO cardiopulmonary resuscitation attempt >15 minutes prior to the time of paramedic arrival and time of call

EXCLUSION CRITERIA
- Pregnancy
- Patients ≤16 years old
- Traumatic cardiac arrest
- Pulmonary embolism

SUSPECTED REVERSIBLE CAUSES
- Hypoxaemia
- Hypovolaemia
- Hypo/hyperthermia
- Hypo/hyperkalaemia
- Thrombosis (cardiac)
- Tension pneumothorax
- Toxins/poisons/drugs
- Tamponade

Following unsuccessful resuscitation, paramedics are requested not to remove any clinical intervention equipment eg airway, cannulae or defibrillation pads as they are required to be left in situ until such time as certification or subsequent autopsy of the body can be undertaken

*If in doubt or unsure commence resuscitation

Note: The most current version of this document is available on the ASNSW Intranet site.
PROTOCOL F2
Primary Survey examination ABCDE
Confirm cardiac arrest

Protocol C2

COMMENCE RESUSCITATION

ATTACH DEFIBRILLATOR

ASSESS RHYTHM / SIGNS OF LIFE

**DURING CPR (if authorised):**
- Check electrodes
- Advanced airway management
- IV/IO access
- Adrenaline

**Consider/correct suspected reversible causes:**
- Hypoxaemia
- Hypovolaemia
- Hypo/hyperthermia
- Hypo/hyperkalaemia & other metabolic conditions
- Thrombosis (cardiac)
- Tension pneumothorax
- Toxins/poisons/drugs
- Tamponade

**Related pharmacology:**
- ATROPINE
- AMIODARONE
- LIGNOCAINE
- HARTMANNS
- SODIUM BICARBONATE
- MORPHINE/MIDAZOLAM

# Patients with suspected reversible causes should be transported to hospital urgently with treatment on route.

**SHOCKABLE VF / VT**

DEFIBRILLATE

- Adrenaline
- Amiodarone
- Lignocaine

**IMMEDIATE CPR 2 MIN**

**NON - SHOCKABLE PEA / ASYSTOLE**

- Adrenaline
- Atropine

**IMMEDIATE CPR 2 MIN**

Note: The most current version of this document is available on the ASNSW Intranet site.
PROTOCOL DELETED

RATIONALE: Protocol C4 has been deleted and incorporated into protocol C3 – Cardiac Arrest.
CARDIOGENIC PULMONARY OEDEMA

Cardiogenic pulmonary oedema is a condition that results from an inability of the heart to pump effectively resulting in accumulation of fluid in the lungs. The underlying causes of cardiogenic pulmonary oedema may include congestive cardiac failure, left ventricular failure post AMI, hypertension, and pericardial tamponade.

1. PROTOCOL F2 – including primary assessment (ABCDE)
2. Treat DYSRHYTHMIAS if present
3. GLYCERYL TRINITRATE
4. FRUSEMIDE
5. URGENT TRANSPORT
6. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

Note: The most current version of this document is available on the ASNSW Intranet site.
Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services
Last Issued: September 2004
Revised: January 2011
Cardiogenic shock is a state of inadequate tissue perfusion due to “pump failure”. Common causes include myocardial infarction, dysrhythmias, pericardial tamponade or terminal stage of any chronic heart disease. With cardiogenic shock the neck veins are usually distended. If the neck veins are not distended consider hypovolaemia as a possible cause of shock.

1. **PROTOCOL F2** – including primary assessment (ABCDE)

2. Treat **ASSOCIATED CONDITIONS** if present:
   - Acute coronary syndrome

3. Treat **DYSRHYTHMIAS** if present

4. **HARTMANN’S**

5. **ADRENALINE INFUSION** if unresponsive to Hartmann’s

6. **PAIN MANAGEMENT**

7. **URGENT TRANSPORT**

8. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
Patients presenting with bradycardia require assessment to determine if their pulse rate is compromising their hemodynamic status prior to implementing treatment. Treatment is required for haemodynamically compromised patients with a palpable pulse rate of:

- ≥9 years old < 50 per minute
- 1 – 8 years old < 60 per minute
- <1 year old < 80 per minute

Haemodynamic compromise i.e. poor perfusion as indicated by:

- Poor brain perfusion
  - Restlessness
  - Altered LOC (V,P,U)
- Poor skin perfusion
  - Cold
  - Pale
  - Sweaty
  - Capillary refill > 2 seconds
- Hypotension
  - ≥16 years old ≤90 mmHg systolic
  - 6 – 15 years old ≤80 mmHg systolic
  - 1 – 5 years old ≤70 mmHg systolic
  - <1 year old ≤60 mmHg systolic

1. **PROTOCOL F2** – including primary survey (ABCDE)

2. **ATROPINE**

3. **ADRENALINE** if unresponsive to atropine

4. **Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration**

| In children, bradycardia is almost always a sign of hypoxia and / or hypovolaemia – potentially reversible causes must be treated |
1. PROTOCOL F2 – including primary survey (ABCDE)
Consider reversible conditions that may present with tachycardia including absolute hypovolaemic shock, tension pneumothorax and anaphylaxis. Record ECG / 12 lead ECG prior to any specific management.

2. PATIENTS ≤15 YEARS OLD

Unstable patient criteria
Any of the following:
- Chest pain
- Heart failure
- Bibasal crackles + RR >25
- Poor Perfusion
  - Poor brain perfusion
  - Restlessness
  - Altered LOC (V,P,U)
- Hypotension
  - < 1 year old ≤60mmHg systolic
  - 1-5 years old ≤70mmHg systolic
  - 6-15 years old ≤80mmHg systolic

< 1 year old : Heart Rate ≥220
Or
1 – 15 years old : Heart Rate ≥180

Is the Pt UNSTABLE?

Is the Pt CONSCIOUS?

Determine if QRS complex is Narrow <0.12s or Wide ≥0.12s

Synchronised Cardioversion (Maximum 3)

NARROW <0.12s

HARTMANN’S to exclude hypovolaemia

VAGAL MANOEUVRE (Maximum 2)

WIDE ≥0.12s

LIGNOCAINE

URGENT TRANSPORT

Note: The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services
Last Issued: July 2009
Revised: January 2011
3. PATIENTS ≥ 16 YEARS OLD if authorised

1. PROCEDURAL SEDATION is ONLY authorised to assist with limb realignment and/or the difficult extrication of adult patients with orthopaedic injuries, including severe back pain and/or dysrhythmias - tachycardia

2. CONTRAINDICATIONS TO PROCEDURAL SEDATION:
   - Checklist not complete
   - Allergy or hypersensitivity to morphine and/or midazolam
   - Patient unconscious (LOC - U)
   - Unable to cannulate

3. ADVERSE EFFECTS OF PROCEDURAL SEDATION:
   - Respiratory depression
   - Decreased LOC
   - Hypotension

4. PROCEDURAL SEDATION CHECK LIST
   1. There are no existing contraindications to procedural sedation
   2. Pre oxygenation with continuous high flow oxygen
   3. Ensure equipment to support ventilation is readily available
   4. Monitor perfusion status and vital signs (especially respiration rate and level of consciousness)
   5. Cannulate
   6. Monitor oxygen saturation with pulse oximeter

5. PROCEDURE
   1. Administer Hartmann’s 250mL IV bolus
   2. Morphine 0.1mg/kg IV diluted bolus
   3. Midazolam 1mg(1ml) IV diluted bolus
      Repeat every 60 seconds until patient LOC has decreased or total maximum dose of 5mg(5mL) is administered
   - NO further midazolam/morphine is to be administered during or following synchronised cardioversion
4. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
Normal blood levels of potassium are essential for maintaining a normal heart rhythm. High levels of potassium in the blood (severe hyperkalaemia) can cause suppression of electrical activity in the heart. If left untreated the resulting dysrhythmias can lead to cardiac arrest.

**INDICATIONS FOR TREATMENT:**
- Crush injury, compartment syndrome or renal failure
- WITH
- Progression of ECG changes through any of the following:
  - T waves becoming tall and peaked
  - P wave disappearing
  - QRS widening
  - Presence of a sine wave pattern
  - Asystole/ VT/ VF

1. **PROTOCOL F2** – including primary survey (ABCDE)

2. **CALCIUM GLUCONATE**

3. **SODIUM BICARBONATE**

4. **URGENT TRANSPORT**

5. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

Peaked T waves may be a normal variant. Look for progression of ECG changes including T waves as an indication of hyperkalaemia
PROTOCOL DELETED

RATIONALE: Protocol C10 has been deleted. Hypertension (severe) contained no specific treatment relating to acute hypertension and highlighted related conditions whereby existing treatment may assist in reducing acute hypertension. Acute hypertension is best managed in the ED.
A stroke occurs when the blood supply to the brain is interrupted. This can occur as a result of a blocked artery (ischaemia stroke) or as the result of a bleed (haemorrhage stroke) in the brain. Some signs and symptoms of a stroke could include weakness, dizziness, difficulty in speaking and facial droop/paralysis. Remember the FAST (Face, Arm, Speech, Time) test in the assessment of suspected stroke patients.

1. **PROTOCOL F2** – including primary survey (ABCDE)

2. Treat **ASSOCIATED CONDITIONS**, if present:
   - Hypoglycaemia / Hyperglycaemia
   - Altered LOC

3. **URGENT TRANSPORT**

4. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

    Thrombolysis within 3 hours from the time of onset of symptoms can improve some patient outcomes. Transport to hospital should not be delayed
Cardiac Reperfusion –
Primary Angioplasty

Protocol C12

Suspected Myocardial Ischaemia
Chest pain / symptoms indicative of ACS

Protocol C1 – Prescribed Standards of Care
Acquire 12 lead ECG

STEMI Evident?

YES

STEMI Suspected
- Clinical symptoms persist
- LIFEPAK 15 algorithm denotes MEETS ST ELEVATION MI CRITERIA and CONSIDER ACUTE INFARCT
- ST segment elevation
- >1 mm in 2 or more contiguous limb leads OR ≥2 mm in 2 or more chest leads

Protocol C12

Transmit ECG
- Ensure Name, Age, Sex and onset time is included on ECG
- Transmit to nearest designated primary angioplasty destination

Has response been received within 10 mins?

YES

STEMI Confirmed?

YES – Complicated
- Vitals unstable
- Requires ED intervention

Urgent Transport direct to Emergency Department of Cardiac Catheter Laboratory Facility (PRE-NOTIFY EMERGENCY DEPARTMENT)
- Complete handover
- Provide serial ECGs

UNCOMPlicated
- Vitals stable

Urgent Transport direct to Cardiac Catheter Laboratory
- Complete handover
- Provide serial ECGs

NO

Treat as Non STEMI
Transport to nearest appropriate hospital

Note: The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services

Issued: March 2010
Revised: January 2011
The aim of this protocol is to improve outcomes for major trauma patients by transporting directly to a trauma service, or in circumstances where this cannot be achieved, advising the Aeromedical Retrieval Service (AMRS) early so that retrieval arrangements can commence, in order to reduce the time for the patient to reach a trauma service.

In the pre hospital environment, a major trauma patient is defined as any patient that meets any of the criteria of the Trauma Triage Tool.

1. **Assess the scene**
   - Protect yourself and patient from danger or contamination
   - Assess mechanism of injury
   - ***Provide initial scene and situation report (SITREP)*** using the ETHANE mnemonic. The SITREP is a **PRIORITY ACTION** and should be completed on arrival and updated as required as per Reference R15

2. **Primary survey** of ABCDE and arrest life threatening haemorrhage. The primary survey should be performed by the treating paramedic whilst a SITREP is being given by the non treating paramedic. At completion of the primary survey update the Control Centre with a full set of the patient’s physiological observations

3. **Spinal/pelvic immobilisation**, if indicated

4. **Minimise time on scene and TRANSPORT as soon as possible**
   - Assistance should be met enroute to trauma service
   - Urgent transport if indicated – Protocol F3

5. **A Trauma Code 3 notification** is to be conveyed using the MIST acronym and the age and sex of the patient
   - M Mechanism of injury
   - I Injuries/condition found
   - S Physiological signs and symptoms
   - T Treatment/time to hospital

6. If direct transport to a designated trauma service cannot be achieved, or if paediatric patients are unable to be transported directly to a paediatric trauma service, **request the Control Centre to notify Aeromedical Retrieval Service (AMRS)** as early as possible, preferably as soon as the SITREP and primary survey are completed
7. Seriously injured patients should be transported to interstate facilities where these are the highest level trauma service within a 60 minute travel time.

8. Documentation
   It is imperative to provide accurate and relevant clinical information on the PHCR this includes:
   • Recording the main condition/problem as T1 (Major trauma)
   • Recording the trauma triage codes that identified the patient as meeting major trauma criteria:
     • M  Mechanism of injury
     • I  Injury/condition found
     • S  Physiological signs/symptoms

Transport Destination Flowchart

- Designated TRAUMA service
  For all major trauma patients within an estimated 60 minute travel time

- Preferred T1*
  For all major trauma patients within a 60 minute travel time that cannot be transported directly to a trauma service

  * As listed below AMRS must be notified via Control Centre

- Local hospital
  For major trauma patients when transport to a major trauma service or Preferred T1 destination cannot be achieved within a 60 minute travel time

  AMRS must be notified via Control Centre

Note: the 60 minute travel time is a guide only. In the interest of patient care, major trauma patients may be transported greater than 60 minutes to reach a higher level facility ie MTS or RTS. In these circumstances, an attempt must be made to contact the AMRS retrieval consultant through the Control Centre for advice and approval.
9. Transport Destination Guidelines

- Patients meeting major trauma criteria should be transported to the highest level trauma service within an estimated 60 minute travel time. In circumstances where there is choice between a Major Trauma Service (MTS) and a Regional Trauma Service (RTS), transport should be to the closest MTS.

- In circumstances where transport directly to a designated trauma service cannot be achieved, AMRS are to be advised as early as possible. The AMRS consultant may, if considered reasonable and in the interest of patient care, authorise extended transport. Alternatively they may commence retrieval arrangements.

- In the greater metropolitan region, paediatric patients (<16 years of age) should preferably be transported to a paediatric trauma service (PTS) but not bypass a MTS.

The designated trauma services are:

<table>
<thead>
<tr>
<th>Major (Adult)</th>
<th>Regional</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Hunter</td>
<td>Albury</td>
</tr>
<tr>
<td>Liverpool</td>
<td>Gosford</td>
</tr>
<tr>
<td>Royal North Shore</td>
<td>Nepean</td>
</tr>
<tr>
<td>Royal Prince Alfred</td>
<td>Wollongong</td>
</tr>
<tr>
<td>St George</td>
<td>Coffs Harbour</td>
</tr>
<tr>
<td>St Vincent’s</td>
<td>Lismore</td>
</tr>
<tr>
<td>Westmead</td>
<td>Orange</td>
</tr>
<tr>
<td>Canberra (ACT)</td>
<td>Port Macquarie</td>
</tr>
<tr>
<td><strong>Major (Paediatric)</strong></td>
<td>Tamworth</td>
</tr>
<tr>
<td>Sydney Children’s (POW)</td>
<td>Tweed Heads</td>
</tr>
<tr>
<td>Children’s Hospital Westmead</td>
<td>Wagga Wagga</td>
</tr>
<tr>
<td>John Hunter Children’s</td>
<td></td>
</tr>
</tbody>
</table>
In circumstances where travel time to a designated trauma service exceeds 60 minutes, attempt to effect road transport to a **T1 preferred destination** hospital, as a staging point, however ensure that an early notification is made to AMRS via the Control Centre.

**T1** preferred destinations are:

<table>
<thead>
<tr>
<th>Armidale</th>
<th>Bathurst</th>
<th>Bega</th>
<th>Broken Hill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dubbo</td>
<td>Griffith</td>
<td>Goulburn</td>
<td>Manning Base</td>
</tr>
</tbody>
</table>

- If the travel time to a MTS, RTS or T1 preferred destination is greater than 60 minutes then transport to the closest available ED, as a staging point, and ensure that early notification is made to AMRS via the Control Centre.
- If the patient has a **complete and unrelievable** airway obstruction, they may be taken to the nearest available emergency department for urgent resuscitation and request the Control Centre advise AMRS.
- Patients with evidence of **BLUNT TRAUMA** who have absent signs of life (unresponsive, apnoeic, pulseless and monitored in asystole), after clearing the airway using basic life support manoeuvres, may have resuscitation withheld or discontinued **UNLESS** a medical cause or extenuating circumstance exist as per T17.

### 10. Aircraft deployment – Protocol T3

All requests for aeromedical responses are to include a SITREP, MIST* report and rationale for the request. For the majority of patients in metropolitan areas road transport to a Major Trauma Service is the most appropriate mode of transport. A helicopter response can be beneficial in reducing time for SOME patients to reach a Paediatric or Major Trauma Service.

Important points to consider prior to requesting a helicopter response:
- Helicopter activation, mobilisation and response time requires at least 20 minutes, therefore the earlier the call the more timely the response
- Inability to land directly at the scene will result in delayed response
- The time taken to load the patient into the aircraft

*The MIST report provides essential information required to assist in the tasking decision making process.*

The transportation of patients should not be delayed awaiting the arrival of an aircraft. Paramedics should depart scene for hospital and liaise with the medical team through the Control Centre to arrange an appropriate rendezvous point if required.
MULTIPLE VICTIM SITUATIONS

This situation exists whenever the number of victims exceeds the available resources.

RAISE ALARM, RECONNOITRE, REPORT AND TAKE COMMAND

MOVE VICTIMS FROM DANGER AND GIVE BASIC FIELD TREATMENT

MOVE VICTIMS THROUGH TRIAGE POINT AND LABEL

WALKING

YES

GREEN LABEL

NO

AIRWAY
(after simple manoeuvres)

YES

RED LABEL
LIFE THREATENING
NEED URGENT RESUSCITATION

NO

WHITE LABEL
DEAD LEAVE IN FIELD

RESPIRATORY RATE

<10 -> 30/MIN

>2 SECONDS

CAPILLARY REFILL

<2 SECONDS

ORANGE or YELLOW LABEL
NON LIFE THREATENING
TREAT AFTER RED LABELS

>10 - 30/MIN

<2 SECONDS
The aim of this protocol is to provide paramedics with a guide to the appropriate use of helicopters in major trauma.

A helicopter may be tasked to a major trauma incident by the Aeromedical Control Centre based on information provided by:

- 000 call, eg location and mechanism
- SITREP and MIST* report provided by paramedics

*The MIST report provides essential information required to assist in the tasking decision making process

In some circumstances a helicopter may be placed on standby/tasked to reduce the response time to scene, pending an initial scene report.

Criteria for the consideration of a helicopter response include:

- Patients meeting major trauma criteria of the T1 protocol
- and any of the following situations:
  - The road travel time from the scene to a designated trauma service is greater than 60 minutes and a helicopter response would result in the patient arriving at a trauma service sooner
  - The nearest ambulance resource is greater than 30 minutes from the scene and a helicopter response would be faster
  - Difficult patient access such as cliffs, floods, fire or adverse road conditions that make vehicle access inappropriate due to time or risk factors
  - Person in water, boat sinking
  - Multiple casualties
  - Clinical situations where additional or advanced skills provided by a medical team can add value to the treatment of a trapped or critically injured patient such as rapid sequence intubation, or advanced analgesia
The transportation of patients should not be delayed awaiting the arrival of a helicopter. Paramedics should depart scene for hospital and liaise with the medical team through the Control Centre to arrange an appropriate rendezvous point if required.

Spinal pain in the absence of neurological deficit or spinal deformity is not an indicator for helicopter transport.

A request to call off a helicopter response should be accompanied by the rationale and a MIST report to the Control Centre. This is to ensure informed decision making prior to the withdrawal of the medical team.
PS PROTOCOL SPECIFIC EXCLUSION CRITERIA
- Absence of responsible person
- Amnesia
- Anticoagulant medications or known coagulopathy
- Any loss of consciousness or GCS <15
- Known pre-existing cerebral pathology or neurological impairment
- Suspicion of skull fracture
- Suspicious mechanism of injury
- Nausea or vomiting
- Pregnancy

PROTOCOL F2
Treat associated conditions
- Spinal Injury
- Hypovolaemia

Is the Pt alert (ie LOC – A)?
NO

URGENT TRANSPORT
Consider other causes of decreased LOC

YES

Is Pt suitable for non ED option?

YES

Protocol P5

NO

RECOMMEND TRANSPORT to hospital

EXPLAIN RISKS TO Pt
- Confirm competency and capacity Protocol F6
- Issue patient advice card

TRANSPORT

Has Pt accepted Transport?

YES

NO

PROTOCOL P2

Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

History Prompt
- Mechanism of Injury
- Anticoagulants

Associated symptoms
- Headache
- Confusion
- Irritability
- Memory loss
- Vomiting
- Seizures
- Allergies

Clinical Prompts
- GCS < 14
- LOC with Hx Trauma
- LOC prior to arrival
- Visible deformity (Skull/Face)
- Ecchymosis around eyes/ears
- CSF present (ears/nose)
- Pupil reactions
- Systolic BP < 90 mmHg
A head injury may be the result of an isolated incident or be part of a multiple system traumatic injury. Secondary brain injury can occur as a result of hypoxia, hypotension etc so airway maintenance, oxygenation and treatment of hypotension is paramount. Paramedics must have a high index of suspicion of spinal injury in patients with significant injury above the clavicles (especially if unconscious) or with a history of loss of consciousness post head injury.

Frequently patients may suffer a minor head injury without experiencing a traumatic brain injury (TBI). Patients with a suspected TBI should be transported for assessment and observation. Patients with minor head injuries resulting in haematomas or contusions may be safely referred to a GP within a reasonable time frame. Paramedics should have a high index of suspicion for TBI in patients with:

- History of loss of consciousness
- Altered LOC on assessment (V,P,U)
- Retrospective or anterograde amnesia
- Nausea and/or vomiting
- Suspicious mechanism of injury

It is imperative to prevent and/or treat both hypoxia and hypovolaemia in head injured patients, as these are related with a poor prognosis.

1. PROTOCOL F2 – including primary assessment (ABCDE)

2. Treat ASSOCIATED CONDITIONS (if present)
   - Hypoxia
   - Hypovolaemia
   - Spinal injury

3. Consider other causes of DECREASED LOC

4. DETERMINE APPROPRIATE DISPOSITION FOR PATIENT:
   - URGENT TRANSPORT for patients with decreased LOC (V,P,U)
   - NON TRANSPORT RECOMMENDED (Protocol P5) for patients with minor head injury with no suspicion of TBI and no generic or P5 protocol specific exclusions (Protocol P5)
   - RECOMMEND TRANSPORT for all other patients
5. IF THE PATIENT OR CARER DECLINES OR REFUSES ASSESSMENT, TREATMENT OR TRANSPORT
- Protocol P2
- ISSUE A PATIENT ADVICE CARD and HEAD INJURY CARD to Patient or person responsible
- Record on the PHCR that a patient advice card and head injury card were issued

6. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

P5 protocol Specific exclusions:
- Absence of a person responsible
- Amnesia
- Anti-coagulant medications or known coagulopathy
- Any loss of consciousness or current GCS < 15
- Known pre-existing cerebral pathology or neurological impairment
- Suspicion of skull fracture
- Suspicious mechanism of injury
- Nausea or vomiting
- Pregnancy
Spinal injuries are associated with potentially significant morbidity and mortality. The primary aim of management is to prevent further damage to the spinal cord and to prevent unstable spinal column injuries (without cord damage) from damaging the spinal cord.

Paramedics must have a high index of suspicion of spinal injury in patients with significant injury above the clavicles (especially if unconscious) and in elderly patients (≥ 65 years) following a fall (even if < 1m), and in those patients with pre-existing vertebral disease.

If indicated spinal immobilisation should be initiated as soon as possible. Spinal immobilisation / precautions are indicated in blunt trauma patients with ANY of the following CLINICAL CRITERIA:

- Altered LOC (LOC V, P or U or GCS ≤ 14)
- Posterior midline spine tenderness (cervical, thoracic or lumbar)
- Any motor or sensory deficit (i.e. weakness or paraesthesia in extremities)
- Evidence of intoxication – with drugs or alcohol
- Any painful distracting injury

IF NO CLINICAL CRITERIA EXIST THE PATIENT DOES NOT REQUIRE SPINAL IMMobilisation / PRECAUTIONS

Clinical assessment of suspected spinal injury at extremes of age (< 5 years; ≥ 65 years) may be unreliable – if spinal injury suspected, and the clinical criteria are uncertain, then spinal immobilisation / precautions should be instituted

Painful distracting injury is defined as any condition thought to produce pain sufficient to impair the patient’s ability to appreciate other injuries. Such injuries may include (but are not limited to) any long-bone fracture; a visceral injury; a large laceration, degloving injury, or crush injury; significant burns (following trauma); or any other injury causing functional impairment.
1. PROTOCOL F2- including primary assessment (ABCDE)
   - Avoid head tilt
   - Use jaw thrust and airway adjuncts (i.e. oropharyngeal, nasopharyngeal, laryngeal mask airway) and suction to open, clear and maintain the airway
   - A cervical collar may need to be removed to effectively clear and open the airway. Manual in-line stabilisation is required if the cervical collar is removed to facilitate airway care
   - With high cervical injuries, assess for hypoventilation and paradoxical breathing

2. APPLY SPINAL IMMOBILISATION / PRECAUTIONS IF INDICATED

3. PAIN MANAGEMENT

4. ANTIEMETIC IF SPINAL IMMOBILISATION / PRECAUTIONS IN SITU

5. TREAT ASSOCIATED CONDITIONS
   - Hypovolaemia
   - Traumatic injuries
   - Nausea and vomiting

6. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

In uncooperative or agitated patients, or in children, paramedics should not persist with spinal precautions, as these attempts are likely to increase the risk of secondary injury. Spinal precautions should be applied as tolerated, and reasons for not application must be clearly documented on the PHCR

Patients should NOT be transported on a spineboard or scoop stretcher. Patients should be removed from the spineboard / scoop stretcher following extrication unless patient is unstable, or unless extenuating circumstances apply
SPINAL IMMOBILISATION IN CHILDREN

In children spinal immobilisation can be challenging. Where possible, a cervical collar should be applied and the patient postured supine. Cervical collars may not fit patients < 2 years of age. If the application of a collar or placing the patient supine increases distress and movement (thereby increasing the risk of further injury) attempts should cease and the patient should be kept as still as possible using the least restrictive means. Parents may be able to assist in keeping the patient calm and still. Spinal precautions should be applied as tolerated and a comprehensive description of patient factors causing variation must be clearly documented on the PHCR.

ANTIEMETICS IN SPINAL INJURIES

Antiemetic/s should not be administered prophylactically unless at least ONE clinical criteria for spinal immobilisation / precautions is present (i.e. prophylactic antiemetic/s should not be given in the absence of any clinical criteria).

The benefits of anti-emetics must be weighed up against the risks and distress caused, especially in children. If the administration of an anti-emetic is likely to increase distress and movement (especially in children) it may be withheld. Reasons for non administration must be documented on the PHCR.
Injuries to the chest wall may be the result of blunt or penetrating trauma or a combination of both. If the force is sufficient the integrity of the chest wall may be compromised leading to hypoxia. Secondly, with penetrating trauma there may be damage to the underlying organs including the lungs, heart, liver, kidneys or spleen.

1. PROTOCOL F2 – including primary assessment (ABCDE)

2. Treat SPECIFIC CHEST INJURIES requiring pre-hospital intervention:
   - **Tension Pneumothorax** should be suspected in a patient with chest injuries and rapidly deteriorating respiratory and cardiovascular functions. Associated signs may include subcutaneous emphysema, tracheal shift away from the side of the tension and distended neck veins.
   - Chest decompression of the side of injury, using long 12 gauge cannulae in 2nd intercostal space in the mid clavicular line. Decompress the opposite side if indications persist.

   **Tracheal deviation is not a definitive sign, as it may not be seen if bilateral tension pneumothoraces are present**

   - **Sucking chest wound**: cover the hole and tape on 3 of 4 sides. If signs of tension pneumothorax develop, remove the cover and allow the air to escape.

3. Treat HYPOVOLAEMIA if present

4. PAIN MANAGEMENT

5. URGENT TRANSPORT is essential for:
   - Penetrating injuries
   - Respiratory distress

6. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration.
Bilateral chest decompression is indicated if any of the following are present:

- Significant chest trauma/injury and rapidly deteriorating or sudden loss of cardio respiratory function
- Significant chest trauma/injury requiring IPPV. Ideally decompression should occur prior to commencing IPPV
- Traumatic cardiac arrest where chest injury is present or suspected

Treatment for penetrating trauma MUST occur enroute
**LIMB INJURIES AND FRACTURES**

**PROTOCOL T7**

---

**PROTOCOL P5**

**EXCLUSION CRITERIA**
- Inability to ambulate
- Positive Ottawa ankle/foot exam
- Sensory deficit

**PROTOCOL F2**

**ARREST HAEMORRHAGE**
- Manual pressure / arterial tourniquet / elevate

**TREAT ASSOCIATED CONDITIONS**
- Hypovolaemia

**PAIN MANAGEMENT**

**CHECK DISTAL CIRCULATION**
- Align limb is pulses are absent

**TREAT SPECIFIC INJURIES**
- Apply dressing to wounds (Protocol T18)
- Splint fractures
- Specific care for severed limbs

**DO NOT REMOVE AN IMPALED OBJECT**
- Transport with object in situ, occasionally the protruding end of the object may be cut to allow easier transport

**Is Pt suitable for non ED alternative?**

**RECOMMEND TRANSPORT**
- to hospital

**TRANSPORT**
- +YES
  - Transport?
  - NO

**EXPLAIN RISKS TO Pt**
- Confirm competency and capacity Protocol F6
- Issue patient advice card

---

**SEVERED LIMBS**
- Partially severed: carefully protect the distal limb and connecting tissue
- Completely severed: Keep part dry, wrapped and cold. DO NOT PLACE IN DIRECT CONTACT WITH ICE

---

Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

---

Note: The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services
Last Issued: July 2009
Revised: January 2011
1. PROTOCOL F2 – including primary assessment (ABCDE)

2. ARREST HAEMORRHAGE by manual pressure or arterial tourniquet

3. Treat HYPOVOLAEMIA if present

4. PAIN MANAGEMENT

5. Check DISTAL CIRCULATION – if pulses are absent, gently realign fractured segments until the pulse returns or alignment is near normal

6. Apply DRESSINGS to open wounds

7. DO NOT REMOVE AN IMPALED OBJECT if present. Transport the patient. Occasionally, the protruding end of the object has to be carefully cut off to allow easier transportation

8. Splint FRACTURES

9. SEVERED LIMB:
   - PARTIALLY SEVERED – carefully protect the distal limb and the connecting tissue no matter how tenuous
   - COMPLETELY SEVERED – Keep the part dry, wrapped and cold. Place the part in a dry sealed plastic bag and then place within another bag filled with cool water, ideally at 4°C. Freezing kills the tissues. Do not place the part in direct contact with ice

10. DETERMINE APPROPRIATE DISPOSITION FOR PATIENT:
   - URGENT TRANSPORT for patients with protocol F3 criteria
   - NON TRANSPORT RECOMMENDED (Protocol P5) for patients with minor soft tissue injuries to the ankle and foot and no generic or P5 protocol specific exclusions
   - RECOMMEND TRANSPORT for all other patients

11. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

P5 protocol specific exclusions:
   - Inability to ambulate
   - Positive to Ottawa ankle / foot examination
   - Sensory deficit
1. PROTOCOL F2 - including primary assessment (ABCDE)

2. ARREST HAEMORRHAGE

3. DO NOT REMOVE AN IMPALED OBJECT
   - Transport the patient with the object in situ. Occasionally, the protruding end of the object has to be carefully cut off to allow easier transportation
   - The only exception is an intra-cardiac object in a patient with cardiac arrest requiring external cardiac compressions if resuscitation is commenced

4. Treat HYPOVOLAEMIA if present to the presence of a radial pulse

5. PAIN MANAGEMENT

6. TREAT SPECIFIC INJURIES

7. URGENT TRANSPORT is essential for all penetrating trauma excluding injuries to the hands and feet

8. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

Minimise scene time and treat en-route. Do not give fluids for penetrating trauma to the torso if the total time from call booked to arrival at hospital is likely to be less than 30 minutes
1. **PROTOCOL F2** - including primary assessment (ABCDE)

2. Consider pelvic fractures in a patient who has experienced any mechanism of injury that has resulted in a large inertia change at impact. High risk groups include:
   - Vehicle v pedestrian / cyclist
   - Motor Bike Crash (MBC)
   - Motor Vehicle crashes with patient side impact
   - Crush or compressive force
   - Patients > 65 years of age

3. Trauma patients complaining of any pelvis, hip, groin or lower back pain prior to examination, or having any obvious deformity on physical examination, should be deemed to have a pelvic injury. Patients are **NOT** to have their pelvis sprung or compressed.

4. Apply pelvic sheeting and minimise movement to **PELVIS** during transport.

5. Treat **ASSOCIATED CONDITIONS**
   - Hypovolaemia

6. **PAIN MANAGEMENT**

7. **URGENT TRANSPORT** per protocol T1

8. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration.
DIAGNOSIS
A decrease in the effective volume of circulating blood, often leading to a state of inadequate tissue perfusion:

1. **ABSOLUTE hypovolaemia** – decrease in blood volume caused by:
   - External or internal blood loss
   - Plasma loss with burns
   - Fluid and electrolyte loss with vomiting, diarrhoea, diuresis and sweating

2. **RELATIVE hypovolaemia** – increase in size of the vascular bed – ‘vasodilation’ caused by:
   - Neurogenic shock
   - Drugs – excessive intake of anti-hypertensives, sedatives etc
   - Anaphylaxis
   - Sepsis

**HYPOVOLAEMIA in trauma must be managed differently to other causes of hypovolaemia. Increasing the patient’s blood pressure too much may dislodge a clot that is preventing major haemorrhage. Additionally, excess volumes of fluid may impair the clotting process further increasing the risk of blood loss, hypothermia and acidosis.**

THE ‘KEY SIGNS’ OF SHOCK:

I. **TACHYPNOEA**

II. **POOR BRAIN PERFUSION**
   - Restlessness
   - Altered LOC

III. **POOR SKIN PERFUSION**
   - Cold
   - Pale
   - Sweaty
   - Capillary refill > 2 seconds

   **NB:** with relative hypovolaemia the skin may be warm and pink
HYPOVOLAEMIA

IV. TACHYCARDIA

- ≥13 years old ≥ 100 per minute
- 6 – 12 years old ≥ 120 per minute
- 1 – 5 years old ≥ 140 per minute
- <1 year old ≥ 160 per minute

V. HYPOTENSION

- ≥13 years old ≤ 90 mmHg systolic
- 6 – 12 years old ≤ 80 mmHg systolic
- 1 – 5 years old ≤ 70 mmHg systolic
- < 1 year old ≤ 60 mmHg systolic

The BP may be difficult to measure and two useful rules can be used:
- If a radial pulse is palpable the BP is usually >70mmHg systolic
- If only a femoral pulse is palpable the BP is usually between 60 and 70mmHg systolic

1. PROTOCOL F2 - including primary assessment (ABCDE)

2. URGENT TRANSPORT if indicated

3. HARTMANN’S

4. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

Patients suffering penetrating trauma or multi-trauma require urgent mobilisation for definitive hospital care as they frequently need emergency surgery. Fluid resuscitation is NOT a definitive treatment and normalising vital signs does NOT mean patients are stable. Protocol treatment can be carried out en route and time on scene must be kept to a MINIMUM
1. PROTOCOL F2 - including primary assessment (ABCDE)
   If major neck veins are lacerated do not raise the head as venous air embolism may occur. If embolism occurs, posture in left lateral position and administer 100% oxygen

2. Treat AIRWAY OBSTRUCTION if present

3. ARREST HAEMORRHAGING

4. CERVICAL COLLAR if spinal injury is suspected

5. PAIN MANAGEMENT

6. URGENT TRANSPORT

7. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
BURNS

PROTOCOL F2

ASSESS BURN INJURY
- Signs of airway involvement (HISSC)
- Classification of burn
- Burn surface area

Are signs of airway involvement present?

YES → URGENT TRANSPORT
Treatment/cooling en route

NO → BURN AREA CARE
Remove jewellery, burnt/tight/wet clothing & elevate the burnt area to reduce swelling

COOL THE BURN & APPLY DRESSING
Minimum 20 minutes where possible
DO NOT USE ICE, ICE WATER OR ICE PACKS TO COOL BURNS

PAIN MANAGEMENT / HARTMANN’S

TREAT ASSOCIATED CONDITIONS
- Carbon monoxide poisoning
- Smoke inhalation
- Hypovolaemia

Transport to hospital
NB Continue URGENT TRANSPORT if signs of airway involvement

History Prompts
- Mechanism of Injury
- Signs of airway involvement
  - Hoarse voice
  - Inspiratory stridor
  - Singed facial and nasal hair
  - See-saw breathing
  - Carbonaceous material around mouth and nose
- Burns classification
  - Superficial (e.g., severe sunburn)
  - Partial (e.g., blistering)
  - Full thickness (e.g., charring or may be white)

Treatment options
- Running cool/tepid water available
  - Cool 20 min
  - Pat dry with clean towel
  - Apply plastic film
- Still water available
  - Submerge burn in water or cover with soaked towels
  - Refresh water every 2-3 min
  - Cool 20 min
  - Pat dry with clean towel
  - Apply plastic film
- No water available
  - Apply normal saline or Hartmann’s to burn area
  - Pat dry with clean towel
  - Apply hyrdogel burn dressing
- Burn area already cooled
  - Pat dry with clean towel
  - Apply plastic film

Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
1. **PROTOCOL F2** - including primary assessment (ABCDE)

2. **ASSESS BURN INJURY**
   - If signs of any airway involvement, urgent transport with cooling and treatment en route
     - Hoarse voice
     - Inspiratory stridor
     - Singed facial and nasal hair
     - See-saw breathing
     - Carbonaceous material around mouth, nose or in the sputum
   - Burns are classified as superficial (eg severe sunburn), partial (eg blistering) or full thickness (eg charring)
   - Assess the burn surface area (BSA) for partial or full thickness using the rule of nines

3. **BURN AREA CARE**
   - Remove all jewellery, tight, burnt or wet clothing, and elevate the burnt area to reduce swelling

4. **THE FOLLOWING TREATMENT OPTIONS ARE AVAILABLE**
   - **Running cool/tepid water available:**
     - Cool burn surface area in a shower, with a hose or tap water for a minimum of 20 minutes
     - Gently pat dry with a clean towel
     - Clear plastic film should be applied longitudinally over the burn. Apply in a manner which will not inhibit swelling of the burn surface area and surrounding tissues
   - **Running water NOT available, but STILL water available:**
     - Submerge the burn in water or soaked towels
     - Refresh the water in the towels every 2-3 minutes for a minimum of 20 minutes
     - Gently pat dry with a clean towel
     - Clear plastic film should be applied longitudinally over the burn. Apply in a manner which will not inhibit swelling of the burn surface area and surrounding tissues
   - **No water available:**
     - Apply normal saline (or Hartmann’s) direct to the burn area
     - Gently pat dry with a clean towel
     - Apply hydrogel burn dressing directly to the exposed burn area
• Burn area already cooled prior to arrival:
  • Gently pat dry with a clean towel
  • Clear plastic film should be applied longitudinally over the burn.
    Apply in a manner which will not inhibit swelling of the burn surface
    area and surrounding tissues

Hydrogel MUST NOT be used after cooling

Paramedics must be alert for hypothermia especially in patients with a
large BSA

EARLY COOLING OF BURNT AREAS IS ESSENTIAL. PATIENTS WITH
ISOLATED BURN INJURY IN THE ABSENCE OF OTHER MAJOR
TRAUMA WITH NO SIGNS OF AIRWAY INVOLVEMENT SHOULD BE
COOLED FOR A MINIMUM OF 20 MINUTES PRIOR TO TRANSPORT

DO NOT USE ICE, ICE WATER OR ICE PACKS TO COOL BURNS

ELEVATION OF THE BURNT AREA WILL REDUCE RATE OF
SWELLING. THIS IS ESSENTIAL FOR CIRCUMFERENTIAL BURNS and
BURNS OF THE FACE CHEST and LIMBS

5. PAIN MANAGEMENT Consider prolonged irrigation if water is still
  providing an analgesic effect. Ensure the patient does not become
  hypothermic

6. HARTMANN’S if hypovolaemia is present

7. Treat ASSOCIATED CONDITIONS (if present)
  • Carbon monoxide poisoning
  • Smoke inhalation
  • Hypovolaemia

8. Regularly repeat and document ABCD physical examinations and
  physiological observations in order to identify trends in clinical
deterioration

Chemical burns will require prolonged irrigation,
DO NOT APPLY clear plastic film
1. PROTOCOL F2 - including primary assessment (ABCDE)

2. CONTROL HAEMORRHAGE around the eye or eyelids with direct pressure but NO DIRECT PRESSURE should be exerted on the eyeball itself

3. CHEMICAL BURNS (caustic soda, lime, drain cleaners etc)
   If caustic powder present, remove particulate matter prior to irrigating with copious amounts of water or saline for 20 minutes. Do not allow the removal of particulate matter to delay irrigation. Continue irrigation for longer with more serious injuries, or if in doubt. Retract the lids to ensure thorough flushing of the eye. Remove contact lenses if in situ

4. PROTECT EYE from pressure or rubbing by applying an eye shield or an eye pad lightly taped in position if no further treatment is required en route. The non injured eye should not be padded as this causes needless disorientation to the patient

5. BEWARE OF AGGRAVATING THE INJURY
   • Do not remove protruding or embedded foreign bodies
   • Do not replace an extruded eyeball. Support with a saline moistened sterile dressing lightly taped in position
   • Do not apply any pressure to penetrating injuries and situations with extrusion of ocular contents

6. PAIN MANAGEMENT

7. ANTIEMETIC – prevention of vomiting is very important in eye injuries

8. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
Post electric shock victims may present with minor burns to the skin, damage to the muscles and underlying tissue, dislocations (e.g., shoulder). Unconscious patients may also present with fixed and dilated pupils as well as more serious effects such as cardiac dysrhythmias or cardio respiratory arrest.

1. **BASIC PROTOCOL F2** - including primary assessment (ABCDE)
   Beware of becoming a victim yourself, especially in high voltage situations

2. **TREAT COMPLICATIONS** if present:
   - Dysrhythmias
   - Burns
   - Altered LOC
   - Fractures

3. **PAIN MANAGEMENT**

4. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

---

Contact Control Centre to call electrical authority immediately in all cases
1. PROTOCOL F2 - including primary assessment (ABCDE)
   If patient’s condition is extreme, respiratory distress with severe shock, or serious head injury, extrication must be performed as rapidly as possible irrespective of any adverse effects on lesser injuries, eg limbs

2. PAIN MANAGEMENT

3. Treat HYPOVOLAEMIA if present

4. IF TRAPPED WITH COMPRESSION:
   If part of the body is compressed by a heavy object there is a risk of sudden death occurring following the removal of the compressive force. This is due to:
   - HYPOVOLAEMIA
     Sudden blood loss, both from and into the compressed tissues causing severe hypovolaemic shock
   - HYPERKALAEMIA
     Sudden release of K⁺, lactic acid and other toxins into the general circulation causing dysrhythmias and decreased cardiac contractility

5. REMOVAL OF THE COMPRESSIVE FORCE:
   - BEFORE REMOVAL
     - IV access with Hartmann’s if not already in place
     - Apply arterial tourniquet to compressed limb
     - Ensure monitor is clearly visible and attached to patient
     - Set up calcium gluconate and sodium bicarbonate ready for administration
   - REMOVE THE COMPRESSIVE FORCE SLOWLY
   - AFTER REMOVAL
     - Monitor ECG for signs of HYPERKALAEMIA and treat if present
     - Release tourniquets – if major bleeding or ECG changes occur reapply tourniquet
     - Treat HYPOVOLAEMIA if present

6. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
LIMB REALIGNMENT AND/OR DIFFICULT EXTRICATION

1. PROTOCOL F2 - including primary assessment (ABCDE)

2. PAIN MANAGEMENT

3. PROCEDURAL SEDATION is ONLY authorised to assist with limb realignment and/or the difficult extrication of adult patients with orthopaedic injuries, including severe back pain

   An opioid MUST be administered and the patient to be pain free at rest before administering midazolam

4. The following sequential procedure must be followed prior to the administration of IV midazolam

   1. Pre oxygenation with continuous high flow oxygen
   2. Ensure equipment to support ventilation is readily available
   3. Monitor perfusion status and vital signs (especially respiration rate and level of consciousness)
   4. Administer Hartmann’s TKVO/flush medications
   5. Monitor oxygen saturation with pulse oximeter

5. CONTRAINDICATIONS TO PROCEDURAL SEDATION:
   • Inability to complete steps 1 to 5 of the sequential procedure
   • Adequate pain management at rest has not been achieved with an opioid
   • Altered LOC for any reason

6. ADVERSE EFFECTS OF PROCEDURAL SEDATION:
   • Respiratory depression
   • Decreased LOC
   • Hypotension

7. PRINCIPLES OF PROCEDURAL SEDATION:
   • Administer an opioid to achieve effective pain management at rest
   • Administer a single dose IV of 1mg midazolam for sedation to allow limb realignment and/or difficult extrication. If adequate sedation is not achieved administer 1mg midazolam every 3 minutes to a maximum dose of 5mg
• Pain management with an opioid may be continued following limb realignment and/or patient extrication
• NO further midazolam is to be administered following limb realignment and/or patient extrication

8. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

With advanced age, CAL, smaller than average size or general debility the dose must be halved. Not approved for paediatric use

Midazolam is not an analgesic agent
Primary survey and regular reassessment of patients involved in major trauma is imperative. Deterioration is indicated when physiological observations trend downwards towards yellow zone (clinical review) or red zone (emergency response) criteria. Also, an adverse trend, even if within normal limits, most likely indicates clinical deterioration.

If evidence of deterioration is present:
- Urgent transport as per Protocol T1 notifying receiving hospital using Code 3“MIST”
- If >60 minutes to a trauma service advise AMRS for aeromedical activation and/or meet specialists (ICP, medical retrieval) en route to definitive care
- Increase frequency of repeated physical examinations and physiological observations

**DETERIORATING PATIENT**

1. **Reassess airway**
   - If evidence or suspicion of obstruction, inspect, clear and open
   - Use jaw thrust and suction if indicated
   - Use airway adjuncts if indicated

   A cervical collar may need to be removed to effectively clear and open the airway. Manual in-line stabilisation is required if the cervical collar is removed to facilitate airway care

2. **Reassess breathing**
   - Assess for pneumothorax / tension pneumothorax
   - If clinical suspicion of tension pneumothorax decompress as per T6
   - Increase oxygen delivery
   - Reassess torso for unrecognised injury

3. **Reassess circulation**
   - Recheck and control any external haemorrhage
   - In blunt trauma always suspect pelvic fracture and immobilise
   - Establish IV access and setup Hartmann’s
   - Administer Hartmann’s if indicated

**Complete ABCDE (primary survey).** It is imperative to expose the patient adequately to ensure no significant injuries are missed
TRAUMATIC CARDIAC ARREST

Traumatic cardiac arrest is associated with significant mortality with approximately 5% patient survival.

The principles of management of traumatic cardiac arrest are:

- Transport as soon as possible and minimise time on scene
  - Assistance should be met enroute to trauma service
  - Urgent transport if indicated – Protocol F3
- Basic life support including airway management and ventilation with 100% oxygen
- Bilateral chest decompression for patients with suspected chest injuries
- IV access and HARTMANN’S
- Dysrhythmia management should be treated as per protocol

**IF A MEDICAL CAUSE IS SUSPECTED TREAT AS PER PROTOCOL C2**

It is reasonable to withhold or discontinue CPR in cases of traumatic arrest when:

- Injuries are obviously incompatible with life
- Where there is evidence of significant time lapse since onset of pulselessness, as indicated by dependent lividity, rigor mortis or decomposition
- Patients with evidence of BLUNT TRAUMA who have absent signs of life (unresponsive, apnoeic, pulseless and monitored in asystole), after clearing the airway using basic life support manoeuvres, **UNLESS** a medical cause or extenuating circumstances exist
Many minor wounds and simple lacerations may be safely managed outside the ED providing certain risk factors are excluded. Certain patient populations, particularly those of advanced years or those who are immuno-suppressed, may be susceptible to infection and may experience subsequent complications associated with delayed wound healing. Wounds less than 8 hours old may be suitable for primary closure by an Extended Care Paramedic (ECP) or General Practitioner (GP). Chronic wounds requiring dressing changes or further assessment may be referred to community wound care services; managing these patients outside the ED is clinically appropriate.

1. PROTOCOL F2 – including primary survey (ABCDE)

2. Treat ASSOCIATED CONDITIONS:
   - Hypovolaemia
   - Limb injuries and fractures
   - Head injury

3. ASSESS THE WOUND
   - SKIN TEAR
     - Clean wound with normal saline
     - Replace skin flap over the wound using sterile forceps if possible
     - Dress the wound with saline moistened dressing and bandage firmly ensuring distal perfusion remains intact
     - DO NOT APPLY ADHESIVE DRESSINGS eg, Opsite, Steri strips etc
   - ABRASIONS (gravel rash)
     - Irrigate wound thoroughly with clean running water or normal saline to remove foreign material (large amounts may be required)
     - Dress the wound with saline moistened dressing and bandage firmly, ensuring distal perfusion remains intact
     - DO NOT APPLY ADHESIVE DRESSINGS eg, Opsite, Steri-strips
   - LACERATIONS, INCISIONS
     - Clean wound with normal saline. DO NOT USE CHLORHEXIDINE directly on the wound
     - Dress the wound and bandage firmly, ensuring distal perfusion remains intact
4. DETERMINE APPROPRIATE DISPOSITION FOR PATIENT:
   - NON TRANSPORT RECOMMENDED (Protocol P5) for patients with acute minor wounds or chronic wounds and no generic or P5 protocol specific exclusions
   - RECOMMEND TRANSPORT for all other patients

5. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

### P5 protocol specific exclusions:
- Acute peripheral ischaemia due to vascular damage
- Bites, punctures or significant crushing injury
- Cosmetic/functional implications
- History of complicated wound healing or diabetes
- Involvement of eyes or mucosal surfaces
- Non-removable foreign material
- Loss of function or sensation
- Potential involvement of tendons
- Scalp wounds with patient on anticoagulants
- Pre-tibial lacerations
- Signs of local or systemic infection
- Unable to complete referral to community health
PROTOCOL F2

Are high risk criteria present?

NO

Is the patient injured?

NO

Is treatment other than basic first aid required?

NO

Perform mobility assessment

YES

Is PT able to perform all tasks in mobility assessment?

YES

Are you concerned the PT may have another fall within 24-48 hours?

NO

TREAT SPECIFIC CONDITIONS and APPLY RELEVANT PROTOCOLS

YES

Transport to ED
Falls are one of the most common reasons for calls to triple zero. Falls are common in older persons and often result in fractures or other serious injuries. Fall related injury is a major cause of morbidity and mortality for older persons. Between 25% - 33% of people aged ≥65 years report at least one fall per year and many fall more than once. Fall injury is a major cause of injury-related hospitalisations and loss of independence among persons aged ≥65 years in NSW.

Falls may often be caused by covert medical problems, especially syncope, cardiac ischaemia, dysrhythmias and infection, a thorough assessment is necessary to rule these out.

In falls it is important that a comprehensive history and thorough primary and secondary survey, is performed to ensure that no significant injuries (i.e. head injury, chest injury, pelvic injury or hip injury), or illness are missed. Assessments of the patient’s ability to mobilise and meet activities of daily living are key elements of the assessment of elderly fallers.

1. **PROTOCOL F2** – including:
   - Primary assessment (ABCDE)
   - Postural (lying and standing) BP and pulse rate

2. **FOLLOW ALGORITHM FOR FALLS IN THE ELDERLY**

3. Treat **ASSOCIATED CONDITIONS** if present
   - Wound care
   - Elderly at risk
   - Limb injuries and fractures
   - Head injuries
   - Chest injuries
   - Pelvic injuries
   - Soft tissue injuries of the face and neck
   - Spinal injuries

4. Complete Elderly At Risk (EAR) assessment (Protocol S8)

5. Regularly repeated and documented ABCD physical examinations and physiological observations to identify trends in clinical deterioration.
Hazmat is the accidental release of a toxic substance or ingestion (accidental or deliberate) of these substances. CBR is the deliberate release of a toxic substance in order to produce mass casualties and panic in effected public. CBR also suggests a terrorist act or one of politically motivated violence. The implications of a CBR incident are quite different to those of a Hazmat incident particularly from the point of view of a police investigation. Staff should be aware of the distinction.

Paramedics may be among the first on a scene of a chemical, biological or radiological (CBR) incident. It is vital that paramedics recognise these situations early and protect themselves and the community.

When a chemical is unidentified, worst-case possibilities concerning toxicity must be assumed. If any effects such as respiratory or eye irritation or any of the above symptoms are experienced when attending a chemical poisoning, you should immediately evacuate the area (ideally upwind) and deny entry to unnecessary and unprotected personnel. Immediately request Fire Brigade HAZMAT, who will wear full protective chemically resistant clothing and pressure-demand, self contained breathing apparatus (SCBA) to rescue and decontaminate patients.

Paramedics must always:

1. OBSERVE THE SURROUNDINGS

   A CBR incident may be indicated by:
   - Physical circumstances, eg pools of liquid, clouds or fogs, unusual colours, strange devices or recent explosion
   - Medical signs and symptoms or unusual behaviour being displayed by many people
   - Dead birds and/or animals in the area

2. IF A CBR INCIDENT IS SUSPECTED

   Protect yourself:
   - Cover nose and mouth with a damp cloth
   - Take frequent shallow breaths
   - Don’t Taste, Eat, Smell or Touch anything in the area
   - Leave the scene immediately and proceed to a safe area
   - Notify the Control Centre of a suspected CBR incident
Decontaminate:
- Self decontamination by removing outer clothing and washing off contaminant with water and soap
- Report to Fire Brigade decontamination station immediately one is available
- When showering pay particular attention to hair and parts of body with opposing surfaces, eg buttocks. Do not scrub and do not use hot water

3. ONCE AN INCIDENT SITE HAS BEEN ESTABLISHED
- Remain clear of the contaminated area unless authorised to enter by the incident commander and provided that the appropriate personnel have protective equipment
- Only authorised and trained personnel will be required to operate in the “Hot zone”
- Follow all HEALTHPLAN and AMPLAN standard procedures. Treat decontaminated victims as per Protocol and treat specific conditions

There is no radiation danger to paramedics from patients undergoing radiotherapy or nuclear medicine investigations
1. PROTOCOL F2 - including primary assessment (ABCDE)
   - Posture supine
   - Administer 100% oxygen

2. Treat PNEUMOTHORAX if present

3. HARTMANN’S

4. PAIN MANAGEMENT

5. PREVENT HYPOTHERMIA – leave wet suit on

6. CONTACT A CENTRE experienced in diving emergencies through the Control Centre

7. URGENT TRANSPORT

8. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

---

Suspect decompression illness in any patient who presents within 24 hours of a dive

Remember that signs and symptoms can be highly variable; therefore you must maintain a high index of suspicion with any clinical presentation
In hot weather or during periods of vigorous activity the body perspires with subsequent cooling as the perspiration evaporates. If the body is subject to long periods of intense heat the body may lose its ability to respond. The two most common forms of hyperthermia are heat exhaustion or heat stroke.

1. PROTOCOL F2 - including primary assessment (ABCDE)

2. If COOPERATIVE and able to swallow give FLUIDS orally

3. COOL the patient

4. Treat any COMPLICATIONS if present:
   - Dehydration
   - Hypovolaemia
   - Fitting
   - Vomiting
   - Hypoglycaemia

5. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
Hypothermia is defined as a body temperature below 35°C. Hypothermia can be defined as mild 32°C to 35°C, moderate 30°C to 32°C or severe when the body temperature is <30°C.

1. PROTOCOL F2 - including primary assessment (ABCDE)

2. Treat ASSOCIATED CONDITIONS if present:
   - Dehydration
   - Hypoglycaemia
   - Drug overdose

3. Remove any wet clothing and **WRAP PATIENT IN A DRY BLANKET FOLLOWED BY A SPACE BLANKET**

4. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
DROWNING

Drowning incidents occur as the result of submersion where the head is below the water causing asphyxia and hypoxia. Immersion is where the head usually remains above the water line often causing hypothermia.

1. PROTOCOL F2 – including primary assessment (ABCDE) Consider conditions that may have caused the drowning which require specific treatment

2. Treat SPECIFIC CONDITIONS if present:
   - Spinal Injury
   - Dysrhythmias
   - Hypothermia

3. INTRA-GASTRIC TUBE – empty stomach of swallowed water especially in children

4. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
Many minor bites and stings can be safely managed away from the ED with the application of basic first aid principles. Spider bites (other than red-back and funnel web), blue bottle stings, insect stings and scorpion stings all manifest primarily with localised irritation around the site of injury, characterised by mild to moderate pain, itching, swelling and erythema. Any suspected or confirmed mammal, snake, red-back / funnel web spider bite/s must be transported for further medical assessment and treatment.

1. **PROTOCOL F2 - including primary assessment (ABCDE)**
   - Reassurance and calming the patient is vital to prevent potential venom flow

2. **Place the patient at complete rest**
   - Beware of symptoms progressing to paralysis causing respiratory & circulatory failure

3. **Event history** in particular the bite history is extremely important and should include:
   - Suspected or witnessed bite
   - Single or multiple bites
   - When, where and how bitten, eg stepped on creature etc
   - First aid measures prior to ambulance arrival
   - Type and timing of symptoms

**DO NOT WASH OR CLEAN SNAKE OR SPIDER BITE WOUNDS**

4. **CREATURE SPECIFIC BITE TREATMENT**
   - **Snake/Funnel Web Spider bites** are to be considered as potential medical emergencies. High priority assessment and treatment is imperative even if the patient is initially well:
     - Apply Pressure Immobilisation Bandage (PIB). If bitten through clothing, do not remove, apply PIB over clothing
     - If an arterial tourniquet is in place, remove after first applying a PIB
     - **ATROPINE** – in Funnel Web spider bites if patient exhibits increased parasympathetic tone (protocol D2)
   - **Red Back Spider bites** – usually minor but respond well to anti venom
     - Cold pack – **Do not apply PIB**
   - **Scorpion/Centipede/Insect bite/s** – usually cause local irritation, except in hypersensitive individuals.
     - Cold pack may provide some relief
     - In bee stings, remove venom sac by scraping not pulling

Note: The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services

Last Issued: July 2009
Revised: January 2011

Page 1 of 3
Barbed marine creature, eg stingray, catfish, stonefish, bullrout, flathead, platypus etc
- Anti venom is available for stonefish only
- Immerse in tolerably hot water (apply ice packs if not available)

Jellyfish stings

- Tropical Jellyfish
  - Anti venom is available for the Box Jellyfish only
  - Carefully monitor patient’s vital signs and prepare to resuscitate patient if required
  - Irrigate with copious vinegar if available
  - Remove adherent tentacles with fingers (not harmful to rescuer) and wash with seawater (DO NOT USE FRESHWATER) if vinegar is not available

- Non Tropical Jellyfish
  - Do not allow patient to rub stung area
  - Remove adherent tentacles with fingers (not harmful to rescuer)
  - Rinse stung area well with seawater (DO NOT USE FRESHWATER)
  - Apply ice packs or wrapped ice for pain relief

Bluebottle stings
- Remove adherent tentacles with fingers (not harmful to rescuer)
- Rinse stung area well with seawater (DO NOT USE FRESHWATER)
- Place patient’s stung area in tolerably hot water
- If local pain is unrelieved by heat, or hot water is not available, application of cold packs or wrapped ice may relieve pain

Cone Shell/Blue Ringed Octopus bite/s – are potentially lethal, transfer for assessment:
- No anti venom is available
- Maintain ABC and administer IV fluids. Continue to monitor the patients vital signs

5. Treat ASSOCIATED CONDITIONS if present:
- Hypovolaemia
- Anaphylaxis
- Respiratory distress
- Fitting
6. PAIN MANAGEMENT

7. IDENTIFICATION – The dead creature should be brought to the hospital if this can be done safely. However, rescuers should ensure that they do not risk being bitten or stung themselves.

8. DETERMINE APPROPRIATE DISPOSITION FOR PATIENT:
   - URGENT TRANSPORT for patients with severe or life threatening symptoms
   - NON TRANSPORT RECOMMENDED (Protocol P5) for patients with minor symptoms responsive to treatment with no generic or P5 protocol specific exclusions
   - RECOMMEND TRANSPORT for all other patients

9. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration.

Any patient exhibiting signs and symptoms of ANAPHYLAXIS must be transported to hospital.

SPIDERS
If the paramedic on scene cannot positively exclude funnel web or red back spider bite, transport patient to hospital with the spider to allow positive identification and treatment if required.

Further advice can be sought from the Poisons Information Centre on 131 126.

P5 protocol specific exclusions:
   - Blue ringed octopus bite, cone shell sting and fish stings
   - Inability to positively identify the aetiology of the bite or sting
   - Mammal bites
   - Signs of allergic reaction or history of hypersensitivity reaction to similar bite/sting
   - Snake bite, red back or funnel web spider bites, tick bite
1. **PROTOCOL F2** - including primary assessment (ABCDE)
   - 100% oxygen must always be administered
   - Any person who has suffered an inhalation injury of toxic substance should be transported to hospital. Pulmonary oedema is a complication that may take some hours to manifest

2. **ASSESS AIRWAY**

3. **SALBUTAMOL** if bronchospasm is present

4. **EYE IRRIGATION** if evidence of eye irritation

5. **URGENT TRANSPORT** is essential for:
   - Altered LOC
   - Hyperventilation/hypoventilation

6. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
1. PROTOCOL F2 - including primary assessment (ABCDE)

2. REMOVE THE PATIENT from the machine
   - Switch the machine off FIRST so the alarm is inactivated then switch off power point on the wall
   - Clamp both blood lines on either side of connection, disconnect and cap patient side

3. FLUID ADMINISTRATION VIA SHUNT OR CANNULATION:
   - INTERNAL SHUNT use either dialysis cannulae. As the pressure in the “arterialised” veins is high, a pump set is essential
   - EXTERNAL SHUNT use ONLY the VENOUS LINE. This is identified by attaching a syringe to each line and releasing the clamp SLOWLY. The pressure in the arterial line fills the syringe
   - IF CANNULATION is required, avoid the fistula arm. If this is not possible cannulate at least 2cm proximal to the fistula

4. TREAT SPECIFIC EMERGENCIES:
   - Fitting
   - Hyperkalaemia
   - Hypovolaemia
   - Pulmonary oedema
   - Venous air embolism – diagnose by observing air in the venous return line

5. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

Use of blood pressure cuffs or tourniquets should be avoided on the arm containing the fistula
GENERAL TREATMENT:

1. PROTOCOL F2 - including primary assessment (ABCDE)
   - 100% oxygen to prevent foetal hypoxia
   - Monitor maternal contractions
   - Position patient laterally
   - Determine gestational age of baby and obstetric history

2. PAIN MANAGEMENT

   IN ACTIVE LABOUR DO NOT ADMINISTER
   OPIOID ANALGESIA UNTIL UMBILICAL CORD CLAMPED AND CUT

3. TREAT SPECIFIC CONDITIONS:
   - Supine hypotensive syndrome
   - Miscarriage
   - Antepartum haemorrhage
   - Postpartum haemorrhage
   - Prolapsed umbilical cord
   - Pre-eclampsia/eclampsia

4. AFTER DELIVERY OF NEWBORN
   - Place newborn on mother’s chest/abdomen with minimal tension on umbilical cord
   - Double clamp and cut cord
   - If < 28 weeks gestation **DO NOT DRY**. Place newborn in polyurethane (oven bag) with head exposed and wrap warmly
   - If > 28 weeks gestation dry and wrap warmly
   - Place newborn supine and perform APGAR score at 1 minute
   - Newborn care protocol S7

5. URGENT TRANSPORT

   Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

   **Do not allow a pregnant patient with an obstetric emergency to walk**

   Never posture supine

   If delivery has not yet occurred consider transfer to an obstetric facility
SUPINE HYPOTENSIVE SYNDROME:
Pregnant women (greater than 20 weeks) should NEVER be positioned supine. The gravid uterus will obstruct the inferior vena cava reducing venous return. This leads to hypotension or syncope and is prevented by posturing the patient on her back with her shoulders flat and sufficient padding under the right buttock to give an obvious pelvic tilt to the left. The patient’s condition should improve rapidly when postured appropriately. If this does not occur, look for other causes and treat accordingly.

MISCARRIAGE:
Miscarriage is the spontaneous delivery of the foetus before 20 weeks and is associated with bleeding and pain. As the foetus passes through the cervix, bradycardia may occur.

1. PROTOCOL F2 - including primary assessment (ABCDE)
2. Treat HYPOVOLAEMIA if present
3. PAIN MANAGEMENT
4. Treat SPECIFIC DYSRHYTHMIA’S if present
5. URGENT TRANSPORT

ANTEPARTUM HAEMORRHAGE:
Antepartum haemorrhage occurs between 20 and 40 weeks and usually presents with PV bleeding before the birth of the baby. Bleeding may be internal and characterised by severe abdominal or pelvic pain with a tense, tender uterus and signs of hypovolaemic shock.

1. PROTOCOL F2 - including primary assessment (ABCDE)
2. Treat HYPOVOLAEMIA if present
3. PAIN MANAGEMENT
4. AVOID PALPATING THE UTERUS and do not perform any vaginal examination
5. URGENT TRANSPORT
OBSTETRIC EMERGENCIES

PROTOCOL S2

POSTPARTUM HAEMORRHAGE:
- “Primary” bleeding occurs within 24 hours of delivery and is usually due to uterine atony or retained placenta
- “Secondary” bleeding occurs after 24 hours and is due to retained placental tissue and/or infection

1. PROTOCOL F2 - including primary assessment (ABCDE)
2. ELIMINATE CAUSES AND TREAT AS APPROPRIATE:
   - Tone – atonic uterus - massage to stimulate contraction. This may need to be continuous massage
   - Trauma – external from birth or laceration, apply direct pressure
   - Tissue – retained products, apply pad and monitor blood loss
   - Thrombin - coagulopathy
3. Treat HYPOVOLEMIC if present
4. PAIN MANAGEMENT
5. URGENT TRANSPORT

PROLAPSED UMBILICAL CORD:
Foetal hypoxia occurs when the cord is compressed

1. PROTOCOL F2 - including primary assessment (ABCDE)
2. Posture in lateral position and elevate buttocks above the level of the uterus using firm pillows:
   - Gently replace the cord into the lower part of the vagina
   - If unsuccessful after one attempt, do not handle cord further. Place pillow between knees to prevent further compression of the cord
3. OXYGEN – 100% oxygen
4. URGENT TRANSPORT

PRE-ECLAMPSIA/ECLAMPSIA:
Pre-eclampsia is characterised by hypertension with a diastolic BP > 90mmHg and proteinuria occurring after 20 weeks of pregnancy or sometimes in the postpartum period. When fitting occurs this is known as eclampsia

1. PROTOCOL F2 - including primary assessment (ABCDE)
2. Treat ASSOCIATED CONDITIONS if present
   - Fitting
   - Altered LOC
3. URGENT TRANSPORT
1. BASIC PROTOCOL F2 - including primary assessment (ABCDE)
   • Safety of the paramedic, patient and bystanders are the key priorities
   • Always consider organic causes for the patient’s presentation (hypoxia, hypoglycaemia etc)

2. SCENE SAFETY ASSESSMENT (including risk of behavioural disturbance)
   Consider police assistance if any of these criteria is met or known to exist:
   • History of violence
   • History of impulsiveness or risk taking behaviour
   • Agitated behaviour
   • Current disturbed mental state such as mania, hallucinations, delusions or paranoia
   • Threats or inappropriate gestures
   • Substance use, especially alcohol or stimulants

   If the scene appears to be a safety risk or you suspect weapons may be present, stand off and call for immediate Police assistance

3. ESTABLISH RAPPORT
   • Calmly identify yourself to the patient
   • Ask the patients name and main concerns
   • Reassure the patient
   • Effectively communicate with simple words and sentences

4. ASSESS CURRENT STATE OF MENTAL HEALTH
   • Significant recent changes
     • What significant changes have recently occurred in the patient’s life?
   • Thought form and process
     • Are the patient’s thought processes of a logical, sequential or orderly form?
   • Actions and appearance
     • Are the patients actions a risk to the patient or others?
     • Does the patient appear to display any indicators of severe behavioural disturbance?
   • Thought content
     • What are the content of the patients thoughts?
     • Are there any thoughts of suicide?
• Emotions and feelings
  • What mood is the patient displaying?
  • What are they feeling?
• Consult family and friends to establish if the current behaviour is out of character, how long it has been evident and what coping mechanisms are usually deployed

5. IF AT RISK OF SUICIDE – Refer protocol S6

<table>
<thead>
<tr>
<th>Section 20 Mental Health Act 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>If the patient has been detained under Section 20 of the Mental Health Act 2007 the paramedic must complete a Section 20 form</td>
</tr>
</tbody>
</table>

6. PATIENT MANAGEMENT – As per Patient Management Protocol F5, Pharmacology 219 (midazolam)

7. TRANSPORT PRINCIPLES – As per Patient Transport Protocol F3, Non Transport Protocol P2, and the Mental Health Emergency Response Memorandum of Understanding

8. If the patient is co-operative ensure that a minimum of 2 sets of ABCD physical examinations and physiological observations are made and recorded on the PHCR. If the patient objects to observations being taken record the reason on the PHCR and observe the patient

9. DOCUMENTATION
• Record that a Mental Health Assessment has been conducted by ticking the Mental Health Assessment box on the PHCR
• Document finding of the Mental Health Assessment in free text
• Record the use of the Mechanical Restraint Device by ticking Mechanical Restraint box on PHCR and Research Box B
• Report ANY adverse events that compromise safety to paramedics, patients or bystanders via IIMS
PROTOCOL F2
Including primary assessment (ABCDE)

PSYCHOLOGICAL SUPPORT
• Adopt a quiet, caring approach whilst giving reassurance and support
• Avoid any judgmental comments about the patient’s actions or those of the alleged assailant(s)
• Some patients will resent physical contact from carers and may respond negatively to terms of endearment

TREAT ASSOCIATED CONDITIONS

CONTACT CONTROL CENTRE TO REQUEST POLICE ATTENDENCE

Is the patient alleging sexual assault?

NO

DO NOT INSERT ANY DRESSINGS INTO VAGINA OR RECTUM

DISCOURAGE THE PATIENT FROM SHOWERING prior to going to the hospital and bring articles of clothing

Patient must be transported to the nearest hospital with child or adult sexual assault facilities

Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

Note: The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services
Last Issued: September 2001
Revised: January 2011
1. BASIC PROTOCOL F2 - including primary assessment (ABCDE)

2. PAIN MANAGEMENT

3. TREAT COMPLICATIONS according to specific protocols. However, if the patient, carers or doctor decide that treatment should be purely palliative, priority should be given to ensuring patient comfort rather than life sustaining measures

Any patient or person responsible that requests ambulance transport **MUST** be transported

A PHCR IS REQUIRED AFTER ANY INCIDENT THAT RESULTS IN NON TRANSPORT FOLLOWING CONTACT WITH A PATIENT
1. PROTOCOL F2 - including primary assessment (ABCDE)
   - Safety of the paramedic, patient and bystanders are the key priorities
   - Always consider organic causes for the patient’s presentation (hypoxia, hypoglycaemia etc)

2. MENTAL HEALTH EMERGENCY PROTOCOL S3

3. SUICIDE RISK ASSESSMENT:

   Screening questions should be asked to determine the patient’s risk of committing suicide using the THREAT acronym:
   - **Thinking** of suicide, eg “Have you been thinking of harming or killing yourself?”
   - **History** of previous suicide attempts, eg “Have you tried to harm or kill yourself in the past?”
   - **Reasons** and circumstances, eg “Why do you want to harm yourself?”
   - **Emotionally** depressed, eg “Do you feel that your circumstances are hopeless or out of control?”
   - **Access** to lethal means, eg “Do you have access to anything that could harm you” and “Do you have access to a firearm?”
   - **Tactics** and plans, eg “Have you been making any plans or taken any steps to harm yourself?”

Additional aspects of assessment following an episode of self-harm or attempted suicide:
- What exactly did the person do?
  - Overdose: What was taken? How much was ingested and over what time period? Have they vomited any of it back up?
  - Self Harm: What was used and how long the patient was exposed?
  - What precipitated the self-harm? Has the situation resolved or is it still present?
  - What is the patient’s immediate intention?
  - What are the patient’s plans?
  - Is the patient at risk of making another suicide attempt?
  - Solicit information from family and friends to establish whether the behaviour is out of character, how long it has been evident, how they deal with crisis
4. **Patient management — Protocol F5**
   - The safety of both the person being assessed and the clinician is the primary concern at all times throughout the assessment process.
   - Wherever possible, a person at risk of suicide should never be left alone.
   - If at any stage of contact a staff member is made aware that the person is in possession of or can gain easy access to a firearm and there is concern about the person’s mental state, the risk of suicide or threat to public safety, contact police to remove the firearm.

5. **Managing a suicide attempt**
   - Remove the person from danger without placing any other person at risk.
   - Assess the person’s current suicide risk. An attempted suicide usually indicates that the person is at high risk in the immediate and short-term period.
   - Provide support to other people present who may be acutely distressed.

6. **Section 20 Mental Health Act 2007**
   If the patient is unwilling to come to hospital voluntarily, they may be transported involuntarily under Section 20 of the Mental Health Act 2007.


8. **Managing a suicide death**
   Staff involved in an emergency response to a suicide death should be as supportive as possible, particularly towards the family of the deceased and other bereaved. This assistance may involve:
   - General comforting.
   - Protection of those who are acutely distressed as a result of the suicide.
   - Ensuring that family and others support the bereaved.
   - The provision of relevant information and guidance in a calm and reassuring manner including the contact details of available specialised bereavement counsellors trained and skilled in dealing with trauma and grief.
1. **PROTOCOL F2** – including primary survey (ABCDE)

2. **AFTER DELIVERY OF NEWBORN**
   - Place newborn on mother’s chest/abdomen with minimal tension on umbilical cord
   - Double clamp and cut cord
   - If < 28 weeks gestation **DO NOT DRY**. Place newborn in polyurethane (oven bag) with head exposed and wrap warmly
   - If > 28 weeks gestation dry and wrap warmly
   - Place newborn supine and perform APGAR score at 1 minute

<table>
<thead>
<tr>
<th>APGAR SCORING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
</tr>
<tr>
<td>Pulse</td>
</tr>
<tr>
<td>Grimace</td>
</tr>
<tr>
<td>Activity</td>
</tr>
<tr>
<td>Respiratory Effort</td>
</tr>
</tbody>
</table>

3. **PROVIDE TACTILE STIMULATION AND BAG MASK VENTILATION** if any one or more of the following signs are present:
   - Heart rate < 100/min
   - Apnoea or poor respiratory effort
   - Hypotonia

4. **SUCTION MOUTH AND PHARYNX** under direct vision, briefly if secretions are present

5. **CPR** including **AIRWAY MANAGEMENT** if heart rate <60/min despite ≥30 seconds of ventilation. Compressions should continue until heart rate >60/min and increasing

   **Ratio 3 compressions to 1 ventilation**
   (90 compressions: 30 inflations/min)

6. **REPEAT APGAR** at 5 minutes. Then every 5 minutes until APGAR > 7
7. **ADRENALINE** if heart rate <60/min despite effective CPR

8. Treat **ASSOCIATED CONDITIONS** if present
   - Hypovolaemia
   - Hypoglycaemia

9. **PREVENT HYPOTHERMIA**

10. **URGENT TRANSPORT** if unresponsive to treatment

11. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

### MEDICATIONS IN NEWBORN CARE

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dosage and Administration</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adrenaline</td>
<td>10mcg/kg (0.1mL/kg) 1:10,000 IV/IO BOLUS Repeat every 3 minutes during resuscitation effort</td>
<td>Heart rate &lt;60/min despite effective CPR</td>
</tr>
<tr>
<td>Hartmann’s</td>
<td>10mL/kg IV/IO BOLUS</td>
<td>Failure to respond to CPR and adrenaline</td>
</tr>
<tr>
<td>Glucose 10%</td>
<td>0.25g/kg (2.5mL/kg) IV/IO BOLUS Repeat if indications persist</td>
<td>BGL &lt;3mmol/L</td>
</tr>
</tbody>
</table>
Elderly patients are commonly attended to by paramedics. While a complaint of medical or traumatic origin may be the stimulus for calling the ambulance, it is common for paramedics to identify co-existing issues in regard to social or personal problems, or functional problems stemming from mobility compromise or fear of falling.

Early referral to community aged care services for triage and assessment will prevent the transport of an otherwise low acuity, clinically well patient. Early identification of an elderly patient at risk allows measures to be put in place before a crisis evolves.

The elderly at risk screen is a tool that may be applied to patients over 65 years of age about whom you have concerns and to assist paramedics with the identification of risks such as falling, medication error, difficulties with activities of daily living (ADL) and/or instrumental activities of daily living (IADL).

1. PROTOCOL F2 – including primary survey (ABCDE)
2. COMPLETE ELDERLY AT RISK ASSESSMENT (EAR)

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you live alone or are you the carer for someone?</td>
<td></td>
</tr>
<tr>
<td>2. Do you have any difficulty walking or have you had any falls in the</td>
<td></td>
</tr>
<tr>
<td>last 12 months?</td>
<td></td>
</tr>
<tr>
<td>3. When you are well do you have any difficulties managing your day to</td>
<td></td>
</tr>
<tr>
<td>day care needs?</td>
<td></td>
</tr>
<tr>
<td>4. Have you visited the hospital emergency department in the past month?</td>
<td></td>
</tr>
<tr>
<td>5. Have you been experiencing any significant difficulties with your</td>
<td></td>
</tr>
<tr>
<td>memory?</td>
<td></td>
</tr>
<tr>
<td>6. Have you lost weight in the last 3 months?</td>
<td></td>
</tr>
<tr>
<td>7. Do you have any difficulty swallowing food or fluids?</td>
<td></td>
</tr>
<tr>
<td>8. Do you take 4 or more medications daily?</td>
<td></td>
</tr>
</tbody>
</table>

- If two or more “Yes” responses AND/OR there is evidence of risk factors in the home environment AND/OR a change in the patient’s ability to cope with basic activities of daily living the score is “POSITIVE”
3. follow DISPOSITION ALGORITHM

**EAR ASSESSMENT COMPLETE**

**Is non transport recommended for Pt’s presenting problem?**

- **NO**
  - **TRANSPORT**
    - Notify triage of any specific POSITIVE EAR assessment results
  - **YES**
    - **NEGATIVE EAR ASSESSMENT**
    - **POSITIVE EAR ASSESSMENT**

- **YES**
  - **PROTOCOL P5**
  - **Does the Pt have any GENERIC or P5 PROTOCOL SPECIFIC EXCLUSIONS?**
    - **NO**
      - Complete ACAT referral
    - **YES**
      - **Give Pt an aged care assessment referral form**
      - **Was ACAT referral successful and within an appropriate timeframe?**
        - **YES**
          - **Protocol**
        - **NO**

Any patient or person responsible that requests ambulance transport **MUST** be transported

**P5 protocol specific exclusions:**
- Aged care referral timeframe inappropriate
- Concern for immediate welfare and safety
Protocol S9 is for AUTHORISED PARAMEDIC USE only.

The underpinning goals of providing care to the palliative care patient are to maximise comfort, ensure adequate analgesia, maintain dignity and prolong life. Patients with palliative diagnoses commonly experience other medical conditions and exacerbations throughout the palliative process that do not constitute a terminal, or end of life event. Timely resolution of such conditions can prolong life, and maximise quality of life, throughout the terminal process.

The patient must have an identified palliative care plan that has been established in conjunction with a recognised palliative care service. If a copy of the plan cannot be found, paramedics must establish contact with the patient’s palliative care team or doctor in order to identify the most appropriate course of action. This course of action might involve advice, reassurance or assistance with administration of drugs for breakthrough analgesia, or transport directly to a palliative care ward. If treatment is to be purely palliative transport is not recommended.

1. **BASIC PROTOCOL F2** - including primary assessment (ABCDE)

2. **PAIN MANAGEMENT**

3. **TREAT COMPLICATIONS** according to specific protocols. However, if the patient or doctor decides that treatment should be purely palliative, priority should be given to ensuring patient comfort rather than life sustaining measures.

4. **DETERMINE APPROPRIATE DISPOSITION FOR PATIENT:**
   - **NON TRANSPORT RECOMMENDED** *(Protocol P5)* for patients with confirmed palliative care plans. Generic and/or P5 protocol specific exclusions do not apply
   - **RECOMMEND TRANSPORT** for all other patients and/or if patient/palliative care team/doctor requests transport and/or paramedics have any concerns over patient care

**Any patient or person responsible that requests ambulance transport MUST be transported**

**A PHCR IS REQUIRED AFTER ANY INCIDENT THAT RESULTS IN NON TRANSPORT FOLLOWING CONTACT WITH A PATIENT**
Drugs or poisons may be ingested, inhaled, injected or absorbed through the skin. This could be the result of an accidental overdose or through intentional overdose or self harm. Recognition of the route of absorption and type of drug or poison will determine treatment. In overdose patients the most common cause of hypoxia is airway obstruction resulting from a decreased LOC.

1. PROTOCOL F2 - including primary assessment (ABCDE)
   - Use head tilt, jaw thrust and airway adjuncts (ie oropharyngeal, nasopharyngeal, laryngeal mask airway) and suction to open, clear and maintain the airway
   - Administer high flow oxygen
   - Monitor cardiac rhythm as there is an increased risk of dysrhythmias, especially if cardiac medications, tricyclic antidepressants, carbamazepine or chloral hydrate have been ingested

2. NALOXONE if narcotic overdose is suspected

3. SODIUM BICARBONATE in tricyclic overdoses with conduction delay (wide QRS complex) presenting with shock, coma or convulsions

4. ATROPINE if organophosphate poisoning is suspected

5. Treat ASSOCIATED CONDITIONS, if present:
   - Altered LOC
   - Hypovolaemia
   - Dehydration
   - Hypothermia
   - Hyperthermia
   - Crush injury / hyperkalaemia

6. ANY REMAINING DRUGS OR POISONS should be brought to the hospital if this can be done safely

7. URGENT TRANSPORT

8. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

Note: The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Advisor, Assoc Prof Paul Middleton
Maintained by: Clinical Services

Issued: July 2009
Revised: January 2011
Organophosphates are dissolved in strong solvents to make a liquid (hence sprayable) form. They are usually either deliberately ingested (suicide attempt) or accidentally absorbed through the skin (fluid spill in agricultural workers).

Organophosphates DO NOT form gases that can be inhaled and cause harm. The smell associated with organophosphates is that of the solvent and not the organophosphate. Prolonged exposure to breathing the solvent can cause headache, nausea and dizziness. Dermal exposure is the main risk to paramedics, usually via the organophosphate chemical fluid or contaminated vomitus / body fluids on the patient or surrounds.

Patients who have organophosphate poisoning DO NOT “Off-Gas” organophosphates.

Organophosphate poisoning should be suspected in persons using certain pesticides which can be absorbed through the skin, lung or gut. These agents are anticholinesterases and affect the parasympathetic and somatic nervous systems.

Organophosphate poisoning presents with a spectrum of clinical symptoms and signs including:

### MILD
- Rhinorrhea
- Headache
- Chest tightness
- Abdominal pain
- Lacrimation
- Excess salivation
- Nausea
- Pin point pupils
- Sweating
- Visual disturbance
- Localised twitching

### MODERATE / SEVERE
- Dyspnoea
- Incontinence
- Decreased LOC
- Cardiac arrest
- Muscle fasciculation
- Vomiting
- Seizures
- Respiratory arrest
- Weakness
- Confusion
- Dysrhythmias
- Hypoventilation

Note: The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services
Issued: July 2009
Revised: January 2011
1. **AVOID SELF CONTAMINATION** as these poisons can be absorbed through the skin – wear protective equipment
   - Charcoal mask
   - Goggles are to be worn for eye protection – glasses are not sufficient
   - Chemical resistant gloves are to be worn for all patient contact
   - Disposable fluid resistant gowns are to be worn for all patient contact

2. **PROTOCOL F2** - including primary assessment (ABCDE)
   Monitor ECG for dysrhythmias

3. **DECONTAMINATE** by removing contaminated clothing and, where possible, wash the skin thoroughly with soap and water prior to transport. This is not necessary if the substance has been ingested only

   A heavily contaminated site/patient requires Fire Brigade HAZMAT response for decontamination before treatment

4. **ATROPINE**

5. Treat **HYPOVOLAEMIA** if present

6. **URGENT TRANSPORT**

7. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
ALCOHOL INTOXICATION

1. BASIC PROTOCOL F2 - including primary assessment (ABCDE)

2. EXCLUDE OTHER POSSIBLE CAUSES such as:
   - Hypoxia
   - Head injury
   - Hyper/hypoglycaemia
   - Infection eg urinary tract infection

3. RECOMMEND TRANSPORT
   - If any of the following are present a strong recommendation for transport should be made:
     - Any red emergency response criteria
     - Any yellow clinical review criteria
     - Physical examination detects abnormalities in physiological observations or identifies the presence of trauma or there is suspicion of alternate diagnosis
     - The paramedic feels the patient’s present mental/physical condition or current physical location may pose a risk to the patient’s or other people’s well being
     - A suitable person cannot be located to provide continued observation of the patient

4. IF PATIENT REFUSES TRANSPORT (Protocol F2):
   - Confirm patient is adequately responsive and has capacity and competency
   - If alcohol alone is thought to be the cause attempt to find a competent adult who is not intoxicated and is willing and able to provide continued observation to the patient
   - Issue a patient advice card to the person responsible and record on PHCR
5. DOCUMENT the FOLLOWING INFORMATION ON THE PHCR

- All information regarding the incident, patient assessment and treatment including any advice given by paramedics and:
  - The patient’s chief complaint
  - Scene details
  - Family, bystander and witness information
  - Patient name and date of birth
  - That the patient or person responsible refused transport after being informed of the risks having demonstrated competency and capacity
  - The reason for refusing transport
  - Ask the patient to sign the refuse/decline transport section on the PHCR. If either disclaimer is not signed record the reason

6. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration
1. PROTOCOL F2 - including primary assessment (ABCDE)

2. Irrigate face with copious amounts of cold water. Where possible use running water and encourage patient to lean forward during treatment

3. Patient’s face and affected skin should be washed with a low irritant shampoo
   - Pour 5mls of shampoo onto your gloved hand and massage into patient’s face and affected area
   - Wash off shampoo with cold water
   - A second application of shampoo may be necessary as eyebrows, beards and moustaches are areas that may cause prolonged contamination
   - Ongoing decontamination may be required for up to 20 minutes

4. Irrigate eyes ensuring that the area under the eyelids is well irrigated

5. To help relieve the burning sensation ice packs may be placed on affected area

6. Consideration should be given to the presence of hypothermia in colder areas, due to the large amounts of cold water required in the decontamination process

7. DETERMINE APPROPRIATE DISPOSITION FOR PATIENT:
   - RECOMMEND TRANSPORT for all other patients
   - NON TRANSPORT RECOMMENDED (Protocol P5) for patients with no generic or P5 protocol specific exclusions

8. Regularly repeat and document ABCD physical examinations and physiological observations in order to identify trends in clinical deterioration

P5 protocol specific exclusions:
   - Inability to decontaminate
   - Unrelieved visual disturbance
NERVE AGENT POISONING

Protocol D5

Note: The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services
Last Issued: January 2011
Revised: January 2011

Page 1 of 2

Nerve agents are a group of particularly toxic chemical warfare agents which are related chemically to organophosphate insecticides. The principal agents in this group are: GA (Tabun), GB (Sarin), GD (Soman), GF and VX. In the pure state, nerve agents are colourless liquids, however in an impure state, nerve agents may be encountered as yellowish to brown liquids and some have a faint fruity odour.

The effects of the nerve agents are mainly due to their ability to inhibit acetyl cholinesterase throughout the body. Nerve agents affect the heart and lungs,
NERVE AGENT POISONING

the gastrointestinal tract, the bladder, blood vessels, eyes, salivary glands, sweat glands, muscles and the central nervous system. The inhibition of acetyl cholinesterase by nerve agents may be irreversible and effects may be prolonged.

Clinical effects vary depending on which sites are affected. Following inhalational exposure, casualties may experience a sequence of symptoms and signs, the progression of this sequence will depend on the dose. Liquid nerve agents on skin and in wounds are rapidly absorbed and will cause localised sweating and fasciculation, and subsequent systemic effects. Death from exposure to high doses of nerve agents in any form usually results from asphyxia and cardiorespiratory failure.

Chemical nerve agent poisoning presents with a spectrum of clinical symptoms and signs including:

<table>
<thead>
<tr>
<th>MILD</th>
<th>MODERATE / SEVERE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhinorrhoea</td>
<td>Dyspnoea</td>
</tr>
<tr>
<td>Headache</td>
<td>Incontinence</td>
</tr>
<tr>
<td>Chest tightness</td>
<td>Decreased LOC</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>Cardiac arrest</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Lacrimation</td>
<td>Muscle fasciculation</td>
</tr>
<tr>
<td>Excess salivation</td>
<td>Vomiting</td>
</tr>
<tr>
<td>Nausea</td>
<td>Seizures</td>
</tr>
<tr>
<td>Pin point pupils</td>
<td>Respiratory arrest</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweating</td>
<td>Weakness</td>
</tr>
<tr>
<td>Visual disturbance</td>
<td>Confusion</td>
</tr>
<tr>
<td>Localised twitching</td>
<td>Dysrhythmias</td>
</tr>
<tr>
<td></td>
<td>Hypoventilation</td>
</tr>
</tbody>
</table>

Combopen must only be used if approved by the ASNSW Medical Commander or Medical Director and/or the NSW Health Chief Health Officer for nerve agent incidents.

Atropine (alone or in combination with obidoxime) must continue to be administered whilst indications persist until maximum dosage is reached. Reduced diaphoresis and tachycardia are good indicators of adequate administration of atropine.

---

Note: The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services

Last Issued: January 2011
Revised: January 2011

Page 2 of 2
This protocol meets the needs of individual patients with specific medical conditions that require pre-authorised medications or procedures not included in the ASNSW Protocols and Pharmacology. Medications and procedures authorised by the ASNSW Medical Director under this protocol may require the use of different delivery equipment or systems.

Paramedics using protocol P1 may be presented with one of three authorised and approved clinical plans which have been developed following consultation with the patient, relatives/carers and medical practitioners:

A. GENERIC P1: for patient with specific medical conditions. These cases require pre-authorised medications or procedures not included in ASNSW Protocols and Pharmacology for example IM hydrocortisone for Congenital Adrenal Hyperplasia (CAH) and Addison’s disease

B. Children’s Hospital Westmead (CHW) Paediatric Palliative Care Management Action Plan: for paediatric patients under the care of CHW who may remain at home for the length of their care or be transported to a facility other than a hospital ED.

C. Adult Palliative Care Management Action Plan: for adult patients under the care of their medical practitioner who may remain at home/institution for the length of their care or be transported to a facility other than a hospital ED.

Treatment decisions will be non-discriminatory and will be dependent only on factors which are relevant to the patient’s medical condition, values and wishes.

A copy of the request, signed by a registered medical practitioner, is to be attached to the Patient Health Care Record if available

1. BASIC PROTOCOL F2 – including primary survey (ABCDE)

2. SPECIFIC TREATMENT according to the relevant protocol

3. ADMINISTER AUTHORISED MEDICATIONS AND PROCEDURES only if it clearly required for the patient’s pre-defined medical condition
4. TRANSPORT DECISION

- If the care plan authorises treatment without transport record as P1
- Ensure patient / responsible person reads and signs consent to non-transport declaration on PHCR
- If there is no written information available the patient’s carer, registered medical practitioner, palliative care team or specialist is to be contacted.
- If there is any doubt as to the wishes of the patient, person responsible and/or the patients registered medical practitioner, palliative care team or specialist can not be contacted, transport the patient to the closest clinically appropriate hospital or the facility where existing treatment is being provided.

All PHCRs and relevant documentation are to be sent to the ASNSW Medical Director for P1 dispositions

Any patient or person responsible that requests ambulance transport MUST be transported

A PHCR IS REQUIRED AFTER ANY INCIDENT THAT RESULTS IN NON-TRANSPORT FOLLOWING CONTACT WITH A PATIENT OR CARER
1. BASIC PROTOCOL F2 - including primary assessment (ABCDE)

2. IF THE PATIENT OR PERSON RESPONSIBLE REFUSES ASSESSMENT, TREATMENT OR TRANSPORT
   • Assess risks to the patient (including EAR assessment for patients >65 years old)
   • Explain the risks to the patient
   • Ensure the patient is informed and demonstrates competency and capacity (Protocol F6)

3. IF THE PATIENT OR PERSON RESPONSIBLE STILL REFUSES ASSESSMENT, TREATMENT OR TRANSPORT DOCUMENT THE FOLLOWING INFORMATION ON THE PHCR
   • All information regarding the incident, patient assessment and treatment including any advice given by paramedics and:
     • The patient’s chief complaint
     • Scene details
     • Family, bystander and witness information
     • Patient name and date of birth
   • That the patient or person responsible refused assessment, treatment or transport after being informed of the risks having demonstrated competency and capacity
   • The reason for refusing transport

4. THE PATIENT OR PERSON RESPONSIBLE MUST BE ASKED TO SIGN
   • Patient Refuses/Declines Treatment/Transport’ section on the PHCR or ASNSW non transport declaration. If either disclaimer is not signed record the reason

5. ISSUE A PATIENT ADVICE CARD to
   • Patient or person responsible
   • Record on the PHCR that a patient advice card was issued

All advice provided by paramedics should be CLINICAL in nature

Any patient or person responsible that requests ambulance transport MUST be transported

A PHCR IS REQUIRED AFTER ANY INCIDENT THAT RESULTS IN NON TRANSPORT FOLLOWING CONTACT WITH A PATIENT
If any of the following are present, paramedics MUST make a very strong recommendation to the patient of the need for transport to hospital, and patients must be advised of the potential serious consequences of non transport including deterioration and/or death:

- Any red emergency response criteria
- Any yellow clinical review criteria
- Patients with an acute history of chest pain or suspected ACS
- Any acute history of LOC or syncope
- Patients ≤15 years old
- Unexplained symptoms or clinical signs especially in patients at increased risk of atypical presentations of ACS (eg diabetic, elderly and aboriginal patients)

If the patient does not understand the risks of refusing transport, or does not demonstrate capacity and competency, or there is concern regarding mental health or suicide risk, seek assistance from an appropriate resource such as a person responsible, health care professional or police if transport cannot be facilitated.
PROTOCOL DELETED

RATIONALE: Protocol P3 has been deleted. Healthy at home (HAH) is currently being phased out and will officially cease in June 2011. Relevant parts of the program will be merged with existing aged care assessment teams (ACAT) and other services. Elderly at Risk (Protocol S8) and Falls in the Elderly (Protocol T19) may assist in the assessment and management of patients previously considered for HAH.
1. BASIC PROTOCOL F2 - including primary assessment (ABCDE)

2. ASSESS THE PATIENT’S SUITABILITY FOR NON TRANSPORT
   - EAR assessment for patients >65 years old
   - Determine if any GENERIC or P5 PROTOCOL SPECIFIC EXCLUSION criteria apply

3. RECOMMEND TRANSPORT for patients with any GENERIC or P5 PROTOCOL SPECIFIC EXCLUSION criteria. If patient or person responsible refuses transport apply PROTOCOL P2

4. RECOMMEND NON ED OPTION:
   - Self care with advice
   - Recommendation for care
   - Immediate referral for care

5. IF PATIENT REFUSES NON ED OPTION transport to ED

6. IF PATIENT CONSENTS TO NON ED OPTION:
   - Ensure patient understands and acknowledges potential clinical risks associated with their condition
   - Initiate referral to allied health service or GP if applicable
   - Provide PATIENT INFORMATION SHEET and give specific advice
   - Ensure patient reads & signs consent to non transport declaration
   - Complete PHCR and leave ‘hospital/patient copy’ with patient

**GENERIC EXCLUSIONS**
- Any red emergency response criteria
- Any yellow clinical review criteria unresponsive to treatment
- Patients with an acute history of chest pain or suspected ACS
- Acute abdominal pain (excluding gastroenteritis)
- Lack of competency and capacity
- History of syncope
- Patients <16 years of age
- Paramedics not trained in CARE or LAP
- Headache
- Suspicion of CVA/TIA
- Concerning history

Any patient or person responsible that requests ambulance transport **MUST** be transported
A PHCR is required after any incident that results in non transport following contact with a patient or carer
This protocol applies to situations where patient access is not possible due to extenuating circumstances in which another agency controls the situation and advises that it is inappropriate / unsafe for paramedics to assess the patient. Examples include police siege or an individual in custody.

1. **IN CONSULTATION WITH PERSONNEL OF THE OTHER AGENCY, DETERMINE IF ACCESS TO THE PATIENT CAN BE GAINED**

2. **IF PHYSICAL ACCESS CANNOT BE GAINED**
   - Establish if visual or verbal access is possible
   - Enquire with agency whether patient has any medical condition, or if there were any circumstances in which the patient could possibly have been injured
   - If there is a possible medical condition or injury, notify the agency that the patient should be assessed at hospital

Patients in police custody retain the right to access medical treatment. If a patient is requesting treatment at a hospital the police should be notified and transport facilitated

3. **IF PATIENT IS TRANSPORTED TO HOSPITAL BY ANOTHER AGENCY**, paramedics should escort the agency to hospital in case patient’s condition deteriorates during transport. If possible a paramedic should travel in the same vehicle as the patient to observe the patient during transport. Patients with low acuity minor injury or illness may be transported by police if this is a mutually agreed course of action to address safety or resource management issues

Patients who have been examined thoroughly, including two sets of observations, have no red or yellow criteria, no negative trend in vital signs and in the clinical opinion of the paramedic require no further observation or monitoring are suitable for non time critical transport

4. **COMPLETE A COMPREHENSIVE PHCR including:**
   - All information regarding the incident, reasons for not being able to access the patient and advice given by paramedics to the other agency
   - Full details of personnel that advised against access to patient, if the agency transported the patient to hospital and if paramedics escorted the patient

A PHCR IS REQUIRED AFTER ANY INCIDENT THAT RESULTS IN NON TRANSPORT FOLLOWING CONTACT WITH A PATIENT OR CARER
This protocol is for situations when patient contact has been made and the primary survey and patient assessment are normal, indicating that there is no health issue or injury. Examples include: frequent attendance of known individuals where the issue is one that may require social support.

1. **BASIC PROTOCOL F2** - including primary assessment (ABCDE)

2. **ASSESS THE PATIENT’S SUITABILITY FOR NON TRANSPORT**
   (including EAR assessment for patients >65 years old)

3. **RECOMMEND TRANSPORT** if any evidence of health issue following examination (ie abnormal observations, presence of red emergency response criteria or yellow clinical review criteria; evidence of injury or illness; or unusual behaviour and/or lack of competency and capacity). If patient or person responsible refuses transport apply **PROTOCOL P2**

4. **RECOMMEND NON TRANSPORT** if no health issue identified
   - Ensure patient or person responsible reads and signs consent to non transport declaration on PHCR
   - If patient or person responsible refuses to sign record the reason

   Any patient or person responsible that requests ambulance transport **MUST** be transported

   If patient’s non health issue is one that may require social support, consider accessing local community social support networks

   A PHCR IS REQUIRED AFTER ANY INCIDENT THAT RESULTS IN NON TRANSPORT FOLLOWING CONTACT WITH A PATIENT OR CARER
1. **BASIC PROTOCOL F2** - including primary survey (ABCDE)

2. **TREAT AS PER AUTHORISED PROTOCOL / PROCEDURE**

3. **ASSESS THE PATIENT’S SUITABILITY FOR NON TRANSPORT**
   (including EAR assessment for patients >65 years old)

4. **RECOMMEND TRANSPORT** if any evidence of health issue following examination/treatment (ie abnormal observations, presence of red emergency response criteria or yellow clinical review criteria; evidence of significant injury or illness; or unusual behaviour and/or lack of competency and capacity). If patient or person responsible refuses transport apply **PROTOCOL P2**

5. **ANY INCIDENT THAT RESULTS IN NON-TRANSPORT FOLLOWING CASUALTY STATION MANAGEMENT:**
   - Ensure the patient is informed and demonstrates competency and capacity (Protocol F6)
   - Ensure the patient reads and signs consent to non-transport declaration on PHCR
   - If patient or person responsible refuses to sign record the reason

6. **ISSUE A PATIENT ADVICE CARD** to patient or person responsible

7. **RECORD DETAILS ON THE PHCR**
   - All information regarding the incident, patient assessment, treatment and details of advice given by paramedics to patients or their carers
   - Record on the PHCR that a patient advice card was issued.

---

Any patient or person responsible that requests ambulance transport **MUST** be transported

All advice given by paramedics should be **CLINICAL** advice

A PHCR IS REQUIRED AFTER ANY INCIDENT THAT RESULTS IN NON-TRANSPORT FOLLOWING CONTACT WITH A PATIENT OR CARER
1. If you have been exposed to blood or body fluids onto your intact skin, wash the skin as soon as possible. Reporting not required

2. If your uniform has been splashed with blood or body fluid, ensure that the uniform is changed as soon as possible and any affected skin washed. Reporting not required

3. If you have sustained a contaminated sharps injury, wash the wound with soap and water or an alcohol hand rub / gel. Cover the wound

   OR

   If you have sustained a splash exposure to the eyes, nose, mouth or non-intact skin with blood or body fluid (excepting sweat), rinse the affected area with water

4. Report the incident to your supervisor and complete an IIMS report

5. Seek medical advice from a hospital or local doctor. If these options are not immediately available, contact the NSW 24 Hour Needle stick Hotline number for advice on 1800 804 823

6. Contact the Manager, Infection Control within 5 business days of the incident occurring to confirm that appropriate follow up has commenced. Mobile Number 0428 238 789
1. Use Standard Infection Control Precautions for all patients regardless of their presumed infection status

2. Use the following Disease Index to determine the type of Additional Infection Control Precautions required when transporting or caring for patients with a suspected or known infectious disease

<table>
<thead>
<tr>
<th>Disease</th>
<th>Precautions</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Airborne</td>
<td>Droplet</td>
</tr>
<tr>
<td>Anthrax</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clostridium Difficile</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Gastroenteritis (Viral) Infections (also see Norovirus)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Giardiasis</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Haemorrhagic Fevers (Marburg, Lassa &amp; Ebola)</td>
<td>✓ ✓ ✓</td>
<td></td>
</tr>
<tr>
<td>Hepatitis A</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Hepatitis E</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Haemophilus Influenza</td>
<td></td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Impetigo</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Influenza (Human Seasonal)</td>
<td></td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Influenza (Human Pandemic)</td>
<td></td>
<td>✓ ✓ ✓</td>
</tr>
<tr>
<td>Legionnaires’ Disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lice (Pediculosis)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaria</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Meningococcal Disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disease</td>
<td>Precautions</td>
<td>Comment</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>---------</td>
</tr>
<tr>
<td><strong>Airborne</strong></td>
<td><strong>Droplet</strong></td>
<td><strong>Contact</strong></td>
</tr>
<tr>
<td>Multi Drug Resistant Organisms (eg VRE, MRAB, MRSA, MRPA, IMP 4, ESBL)</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Mumps</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Norovirus</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Parvovirus</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Pertussis (whooping cough)</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Poliomyelitis</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Respiratory viruses including RSV (Respiratory Syncitial Virus)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Rotavirus</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Rubella</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>SARS</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Scabies</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Shigella (and other bacterial gastro infections)</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Streptococcal Group A Infections</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Streptococcal Pneumonia or Scarlet Fever</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Tuberculosis (confirmed or suspected)</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Varicella Zoster Disseminated</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Varicella (chicken pox)</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Note: The most current version of this document is available on the ASNSW Intranet site.
Explanatory Notes:

- **Standard Precautions** – the minimum acceptable level of practice in Infection Control. It involves the use of hand hygiene, safe work practices and personal protective equipment (PPE) when contact with blood or body fluids is anticipated.

- **Contact Precautions** – Using PPE to provide a barrier between paramedic and patient, dependent upon the level of contact anticipated with the patient. Usually this is gloves and a disposable gown.

- **Airborne and droplet infections are both spread through the air; however droplet refers to “heavy” particles which are likely to fall close to the patient. Airborne refers to “lighter” particles which can easily move long distances by air.**

- **Droplet Precautions** – Persons close to the patient should use a P2 mask to prevent breathing in respiratory droplets. Handle contaminated articles using gloves. Consider the use of a gown to minimise infectious particles being transmitted from person to person.

- **Airborne Precautions** – All persons in the vehicle must use a P2 mask to prevent breathing in airborne respiratory droplets. Handle contaminated articles using gloves.

3. **Cleaning of ambulance equipment after transportation of patients with suspected or confirmed infectious diseases:**

- Wear clean PPE when cleaning after an infectious disease transport. Thoroughly clean patient contact equipment and flat surfaces in the ambulance with a neutral detergent.

For more information about Standard and Additional Infection Control Precautions and cleaning procedures, refer to the Infection Control Procedures (Section 14) in the Clinical Procedures and Skills Manual.
Vital to carry out both Sensory and Motor Examinations

- Use patient’s forehead as a guide to normal sensation
- Examine using a light touch and response to pain (blunt pin)
- Examine both sides, upper and lower limbs, hands and feet

**C5**  
Shoulder Abduction

**C6**  
Elbow Flexion and Wrist Extension

**C7**  
Elbow and Fingers Extension

**C8**  
Finger Grip

**T1**  
Finger abduction

**L2 & L3**  
Hip flexion and abduction

**L4**  
Knee Extension

**L5**  
Ankle and Great Toe Extension

**S1**  
Ankle and Toes Flexion

*Examination of both Sensory and Motor responses must be done*, as the patient may have motor damage without sensory damage and vice versa.
MOTOR EXAMINATION – The level at which weakness or absent movement is noted is the level of the injury

<table>
<thead>
<tr>
<th>UPPER LIMB EXAMINATION</th>
<th>LOWER LIMB EXAMINATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask patient to:</td>
<td>Ask patient to:</td>
</tr>
<tr>
<td>1. Shrug shoulders</td>
<td>1. Flex hip</td>
</tr>
<tr>
<td>2. Bend the elbow</td>
<td>2. Extend knee</td>
</tr>
<tr>
<td>3. Push wrist back</td>
<td>3. Pull foot up</td>
</tr>
<tr>
<td>4. Open/close hands</td>
<td>4. Push foot down</td>
</tr>
<tr>
<td>= C4</td>
<td>= L1/L2</td>
</tr>
<tr>
<td>= C5</td>
<td>= L3</td>
</tr>
<tr>
<td>= C6</td>
<td>= L4</td>
</tr>
<tr>
<td>= C8</td>
<td>= L5/S1</td>
</tr>
</tbody>
</table>

THORACIC AND ABDOMINAL MOTOR EXAMINATION

Look for activity of intercostal and abdominal muscles

DIAGNOSIS OF SPINAL CORD INJURY IN THE UNCONSCIOUS PATIENT

1. Look for paradoxical respiration (a quadriplegic has lost intercostal muscles so he/she relies on the diaphragm to breathe)
2. Flaccid limbs
3. Loss of response to painful stimuli below the level of the lesion
4. Loss of reflexes below the level of the lesion
5. Penile erection of the unconscious male
6. Low BP (systolic less than 100) associated with a normal pulse or bradycardia indicates patient may be QUADRIPLEGIC

IF YOU DON’T THINK ABOUT A SPINAL CORD INJURY YOU WILL MISS IT!
RULE OF NINES

Palm, palm & fingers of patient = 1% BSA
### AVERAGE VITAL SIGNS

<table>
<thead>
<tr>
<th>Age</th>
<th>Weight</th>
<th>Pulse</th>
<th>BP</th>
<th>Resps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newborn</td>
<td>3kg</td>
<td>120</td>
<td>75/45</td>
<td>40</td>
</tr>
<tr>
<td>3 Months</td>
<td>5kg</td>
<td>120</td>
<td>80/55</td>
<td>35</td>
</tr>
<tr>
<td>1 Year</td>
<td>10kg</td>
<td>120</td>
<td>85/60</td>
<td>30</td>
</tr>
<tr>
<td>3 Years</td>
<td>14kg</td>
<td>110</td>
<td>90/60</td>
<td>25</td>
</tr>
<tr>
<td>6 Years</td>
<td>20kg</td>
<td>100</td>
<td>90/60</td>
<td>20</td>
</tr>
<tr>
<td>9 Years</td>
<td>27kg</td>
<td>90</td>
<td>95/65</td>
<td>18</td>
</tr>
<tr>
<td>15 Years</td>
<td>45kg</td>
<td>80</td>
<td>115/75</td>
<td>15</td>
</tr>
<tr>
<td>Adult</td>
<td>70kg</td>
<td>70</td>
<td>120/80</td>
<td>12</td>
</tr>
</tbody>
</table>

### PEAK FLOW EXPIRATORY RATES

<table>
<thead>
<tr>
<th>HEIGHT</th>
<th>Female Peak Expiratory Flow Rate (l/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE</td>
<td>145 cm [4' 7&quot;]</td>
</tr>
<tr>
<td>16</td>
<td>340</td>
</tr>
<tr>
<td>18</td>
<td>360</td>
</tr>
<tr>
<td>25</td>
<td>345</td>
</tr>
<tr>
<td>30</td>
<td>335</td>
</tr>
<tr>
<td>40</td>
<td>325</td>
</tr>
<tr>
<td>50</td>
<td>305</td>
</tr>
<tr>
<td>60</td>
<td>295</td>
</tr>
<tr>
<td>70</td>
<td>275</td>
</tr>
<tr>
<td>80</td>
<td>265</td>
</tr>
</tbody>
</table>

**Note:** The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services

Last Issued: July 2005
Revised: January 2011
<table>
<thead>
<tr>
<th>HEIGHT</th>
<th>145cm (4'9'')</th>
<th>150cm (4'11'')</th>
<th>155cm (5'1'')</th>
<th>160cm (5'3'')</th>
<th>165cm (5'5'')</th>
<th>170cm (5'7'')</th>
<th>175cm (5'9'')</th>
<th>180cm (5'11'')</th>
<th>185cm (6'1'')</th>
<th>190cm (6'3'')</th>
<th>195cm (6'6'')</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>355 265</td>
<td>380 285</td>
<td>400 300</td>
<td>425 320</td>
<td>450 335</td>
<td>475 355</td>
<td>435 370</td>
<td>515 385</td>
<td>540 405</td>
<td>565 425</td>
<td>590 440</td>
</tr>
<tr>
<td>18</td>
<td>370 280</td>
<td>395 295</td>
<td>420 315</td>
<td>445 335</td>
<td>470 350</td>
<td>490 370</td>
<td>515 385</td>
<td>540 405</td>
<td>565 425</td>
<td>590 445</td>
<td>605 455</td>
</tr>
<tr>
<td>20</td>
<td>395 295</td>
<td>420 315</td>
<td>445 335</td>
<td>470 345</td>
<td>485 365</td>
<td>510 380</td>
<td>535 400</td>
<td>560 420</td>
<td>580 435</td>
<td>605 465</td>
<td>630 470</td>
</tr>
<tr>
<td>25</td>
<td>410 305</td>
<td>430 325</td>
<td>460 345</td>
<td>490 370</td>
<td>515 385</td>
<td>545 410</td>
<td>575 430</td>
<td>605 455</td>
<td>630 470</td>
<td>660 495</td>
<td>690 515</td>
</tr>
<tr>
<td>30</td>
<td>395 295</td>
<td>425 320</td>
<td>450 335</td>
<td>480 360</td>
<td>510 380</td>
<td>535 400</td>
<td>565 425</td>
<td>595 445</td>
<td>620 465</td>
<td>650 485</td>
<td>680 510</td>
</tr>
<tr>
<td>40</td>
<td>370 280</td>
<td>400 300</td>
<td>430 325</td>
<td>455 340</td>
<td>485 365</td>
<td>515 385</td>
<td>545 410</td>
<td>570 425</td>
<td>600 450</td>
<td>630 470</td>
<td>655 490</td>
</tr>
<tr>
<td>50</td>
<td>355 265</td>
<td>385 290</td>
<td>410 305</td>
<td>440 330</td>
<td>470 350</td>
<td>490 370</td>
<td>520 390</td>
<td>550 415</td>
<td>575 430</td>
<td>605 455</td>
<td>635 475</td>
</tr>
<tr>
<td>60</td>
<td>330 245</td>
<td>360 270</td>
<td>390 290</td>
<td>415 310</td>
<td>445 335</td>
<td>475 355</td>
<td>505 375</td>
<td>535 395</td>
<td>560 420</td>
<td>590 440</td>
<td>610 460</td>
</tr>
<tr>
<td>70</td>
<td>310 235</td>
<td>340 255</td>
<td>365 275</td>
<td>395 295</td>
<td>425 320</td>
<td>450 335</td>
<td>480 360</td>
<td>510 380</td>
<td>535 400</td>
<td>565 425</td>
<td>595 445</td>
</tr>
<tr>
<td>80</td>
<td>290 215</td>
<td>320 240</td>
<td>350 260</td>
<td>370 280</td>
<td>400 300</td>
<td>430 325</td>
<td>460 345</td>
<td>485 365</td>
<td>515 385</td>
<td>545 410</td>
<td>570 425</td>
</tr>
</tbody>
</table>

BLACK = predicted normal value
GREEN = 75% predicted normal value
The HAZCHEM Table is an initial emergency response code, with up to three symbols, eg 2RE, which indicate the firefighting and dispersion agents (1,2,3,4) risks, personal protection and other measures (P,R,S,T,W,X,Y,Z) and whether or not to evacuate (E). Other terms used include:

- **V** – Risk of violent explosion
- **FULL** – Minimum of a chemical splash suit, breathing apparatus and impervious gloves and boots.
- **BA** – Breathing apparatus and impervious gloves
- **DILUTE** – May be washed away with large amounts of water
- **CONTAIN** – Prevent any spillage from entering drains and watercourses

### DANGEROUS GOODS CLASSES AND DIVISIONS

| EXPLOSIVES | TOXIC GASES | FLAMMABLE LIQUIDS | SUBSTANCES LIABLE TO SPONTANEOUS COMBUSTION | SUBSTANCES WHICH, IN CONTACT WITH WATER, ENSUE FLAMMABLE GASES | SOURCES OR ORGANIC PERCHLORATES | SOURCES OR INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURCES OF INORGANIC PERCHLORATES | SOURCES OF ORGANIC PERCHLORATES | SOURS
Unlit Areas
Free of Wires, Trees, etc.

WIND DIRECTION

Unlit Areas
Free of Wires, Trees, etc.

WIND DIRECTION

Deploy responsible people at each corner to keep landing area clear.

Instruct them if blinded by swirling dust or grit to sit down and await assistance. No loose clothing to be worn by any ground personnel.
USEFUL DRUG AND FLUID FORMULAE

To work out the drip rate for an infusion

\[
\text{Drops per minute (dpm)} = \frac{\text{Volume}}{\text{Time (in minutes)}} \times \frac{\text{Drip Factor}}{1}
\]

To work out how long an infusion will last given a specific drip rate in drips per minute

\[
\text{Duration of drip (in hours)} = \frac{\text{Volume}}{\text{Drips per minute}} \times \frac{\text{Drip Factor}}{60}
\]

To work out the dose for an injection when you are required to give a small dose from a larger or bulk concentration solution

\[
\text{Dose} = \frac{\text{Strength required}}{\text{Strength on hand}} \times \frac{\text{Volume of strength on hand}}{1}
\]

Percent Solutions:
“\(\text{X}\)\% solution – “\(\text{X}\)” grams in every 100mL, eg 10\% Glucose – 10 gram in 100mLs

Drip Factor = 20 (20 drops/mL) Pump Set
Drip Factor = 60 (60 drops/mL) Burette

Ratio Solutions
1:1,000 = 1g: 1,000mL = 1,000mcg in 1,1000mL = 1mg in 1mL
1:10,000 = 1g: 10,000mL = 1,000mcg in 1,10,000mL = 1mg in 10mL
There are 40 different types of seizures

Seizures can be divided into two major groups: partial seizures and generalised seizures

1. Partial Seizures
About 60% of people with epilepsy have partial seizures, also known as focal seizures. These seizures can often be subtle or unusual, and may go unnoticed or be mistaken for anything from intoxication to daydreaming. Seizure activity starts in one area of the brain and may spread to other regions of the brain. Types of partial seizures are:

- Simple Partial (no loss of awareness)
- Complex Partial (change in awareness and behaviour)
- Secondarily Generalised Tonic-Clonic* (see note below)
2. Generalised Seizures

Generalised seizures are the result of abnormal activity in the whole brain simultaneously. Because of this, consciousness is lost at the onset of the seizure. There are many types of generalised seizures:

- Generalised Tonic-Clonic
- Absence
- Myoclonic
- Tonic
- Atonic

Note: Sometimes a seizure starts as a partial seizure and then becomes a generalised seizure – almost always a tonic-clonic seizure. When this occurs, the seizure is called secondarily generalised.
Principles
1. Identify the patient at risk of deterioration
2. Escalate to the Clinical Review Criteria (yellow zone)
3. Monitor through the use of serial observations
4. Respond the Rapid Response protocols (red zone)

### COMPLETE PRIMARY SURVEY

#### CLINICAL REVIEW CRITERIA

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor peripheral circulation</td>
<td>Decrease in Level of Consciousness from Alert (A) to rousable only by voice (V) in the AVPU or new onset of confusion/disorientation</td>
</tr>
<tr>
<td>Excess or increasing blood loss</td>
<td>Temperature &lt; 35.5°C or &gt; 38.5°C</td>
</tr>
<tr>
<td>Respiratory rate 5 - 10 or 25 - 30 breaths per minute</td>
<td>Failure to pass urine within previous 24 hours</td>
</tr>
<tr>
<td>SpO2 90-95% and/or increasing oxygen (O₂) requirements</td>
<td>Blood Glucose level &lt; 4 mmol/L</td>
</tr>
<tr>
<td>Systolic Blood Pressure 90 – 100 or 180 – 200 mmHg</td>
<td>New or increasing pain (including chest pain)</td>
</tr>
<tr>
<td>Heart rate 40 – 50 or 120 – 140 beats per minute</td>
<td></td>
</tr>
</tbody>
</table>

**IF A PATIENT HAS ANY ONE (1) OR MORE CLINICAL REVIEW CRITERIA PRESENT YOU MUST:**

- Initiate appropriate clinical care
- Increase frequency of observations to every 15 minutes
- **DO NOT** delay transport to hospital

**Remember:**
1. Abnormal observations typically indicate a severe injury or illness
2. An adverse trend in observations, even if within normal range usually indicates deterioration

#### EMERGENCY RESPONSE CRITERIA

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL respiratory and cardiac arrests</td>
<td>Heart rate &lt; 40 or &gt; 140 beats per minute</td>
</tr>
<tr>
<td>Airway obstruction or stridor</td>
<td>Systolic Blood Pressure &lt; 90 or &gt; 200mmHg</td>
</tr>
<tr>
<td>Seizures</td>
<td>Only responds to central pain (P) or unresponsive (U), or sudden decrease in level of Consciousness of ≥2 points on GCS</td>
</tr>
<tr>
<td>Respiratory rate &lt; 5 or &gt; 30 breaths per minute</td>
<td>Blood Glucose Level &lt; 4 mmol/L and not responding to treatment</td>
</tr>
<tr>
<td>SpO2 &lt; 90% and/or increase in oxygen (O₂) requirement</td>
<td>Uncontrolled pain</td>
</tr>
<tr>
<td>Decrease in respiratory rate in association with decreasing level of consciousness or exhaustion</td>
<td>Patient deteriorates further, before or during Clinical Review</td>
</tr>
</tbody>
</table>

**IF A PATIENT HAS ANY ONE (1) Emergency RESPONSE CRITERION PRESENT YOU MUST**

- Initiate immediate appropriate clinical care
- Inform Control Centre of code 3
- Repeat observations at 5 minute intervals

### PHCR DOCUMENTATION ACCOUNTABILITIES and RESPONSIBILITIES

Document all
- Patient Observations
- Clinical Interventions
- Treatment Outcomes

---

Note: The most current version of this document is available on the ASNSW Intranet site.
AMBULANCE/ED MEDICAL/TRAUMA HANDOVER TOOL

I Introduction – Patient’s name, age, sex
M Medical complaint / Mechanism of Injury – Presenting problem, how it happened
I Information / Injuries – Symptoms and/or injuries
S Signs – Vital signs (HR, RR, BP, Temp, BGL, GCS etc)
T Treatment/trends – Treatment administered and patient’s response to treatment, trends in vital signs
A Allergies
M Medications – Patient’s regular medications
B Background history – Patient’s medical history
O Other information – Social, scene, relatives present, EAR result

ETHANE (Protocol T1)

E Exact location if different to initial call details
T Type of incident (MVC, industrial, domestic or farming incident)
H Hazards (actual or potential)
A Access to location
N Number, severity of casualties (assess in terms of triage label colours)
E Emergency services (required or present)

SERIOUS Assessment (Protocol M13)

S Serious Concern
E Extremities cold or painful
R Rapid onset of symptoms
I Illness recently
O Other flu like symptoms
U Unresponsive to medications
S Skin abnormality
PATIENT SUPPORT CONTACT NUMBERS

24 hour community support contact numbers:

GENERAL CONTACT AND SUPPORT NUMBERS
- Poisons Information Centre – 131 126
- State Emergency Service (Emergency help in floods and storms) – 132 500
- Telephone Interpreting Services (TIS) – 131 450
- Alcohol & Drug Information Service – 1800 422 599

MENTAL HEALTH AND GRIEF CONTACT NUMBERS
- Salvation Army Crisis Line (Suicide Prevention) – (02) 9331 2000
- Department of Forensic Medicine Grief Counselling – (02) 8584 7800
- Kids Help Line – 1800 551 800
- Lifeline – 131 114
- SIDS and Kids NSW – 1800 651 186
- Trans cultural mental health – 1800 648 911

VIOLENCE AND VICTIMS OF CRIME NUMBERS
- Domestic Violence Line – 1800 656 463
- Department Of Community Services (DOCS) Help Line (reporting child abuse and neglect) – 132 111
- NSW Victims of Crime Support Line – 1800 633 063
- Rape Crisis Centre – (02) 9819 6565 (1800 424 017)
INDICATION:
Pre-Hospital Thrombolysis (PHT) within the designated project area provides a pre-hospital diagnosis for patients suffering ST elevation myocardial infarction (STEMI) and delivers a definitive cardiac reperfusion intervention.

A 12 lead ECG should be acquired on all patients who present with signs or symptoms of acute myocardial ischaemia and are within the defined PHT project area.

ECGs demonstrating suspected acute STEMI pattern, supported by the Lifepak 15 algorithm, should be immediately transmitted for review by a doctor. Each ECG must contain: Patients name, age, sex and symptom onset time.

This protocol does not apply to secondary transports.

1. PROTOCOL F2 - including primary assessment (ABCDE)

2. PROTOCOL C1 including a comprehensive clinical assessment and acquisition of a 12 Lead ECG.

3. TRANSMIT THE 12 LEAD ECG to the designated site ensuring the mobile phone is switched on and reception is available
   - Commence completing the inclusion checklist while waiting for the response from the doctor
   - A doctor will contact you on the mobile phone number printed on the bottom of the ECG to confirm the ECG pattern
   - If a doctor has not called you back within 10mins transport the patient to the appropriate hospital (DO NOT WAIT AT THE SCENE). Attempt to re-transmit en-route in the Ambulance and after 5 minutes notify the Control Centre requesting a doctor review the ECG

4. ON CONFIRMATION OF NEGATIVE STEMI: Transport the patient to the nearest appropriate hospital and pre-notify the hospital of high risk ACS

5. ON CONFIRMATION OF POSITIVE STEMI: Both paramedics must acknowledge positive STEMI confirmation and agree that the patient meets all of the checklist inclusion criteria.
If the checklist criteria are not met, transport the patient to the nearest appropriate hospital and pre-notify the hospital of high risk ACS

6. OBTAIN WRITTEN CONSENT FROM THE PATIENT prior to proceeding

7. ADMINISTER CLOPIDOGREL, TENECTEPLASE AND ENOXAPARIN IN THAT ORDER

8. MONITOR THE PATIENT CAREFULLY ENROUTE: Regularly repeat and document ABCD physical examinations. Physiological observations need to be completed every 15 minutes in order to identify trends in clinical deterioration

9. MONITOR CANNULA SITE for bleeding and treat with firm pressure and elevation as appropriate. Ensure the yellow drug warning label is attached to the patient adjacent to the cannula site

10. MINIMISE TIME ON SCENE AND PRE-NOTIFY THE RECEIVING HOSPITAL

11. PROVIDE A COMPREHENSIVE HANDOVER including a completed set of documentation and serial ECGs

Following thrombolysis, a copy of the PHCR, PHT Checklist and consent as well as ECGs is to be mailed to:
The Project Manager
Cardiac Care
Locked Bag 105
Rozelle NSW 2039
PROTOCOL DELETED

RATIONALE: Protocol X3 has been deleted and replaced with protocol C12 which reflects the new process for pre-hospital assessment for primary angioplasty.
<table>
<thead>
<tr>
<th>Code</th>
<th>Pharmaceutical Item</th>
<th>Last Issue</th>
<th>Revised</th>
</tr>
</thead>
<tbody>
<tr>
<td>201</td>
<td>Adrenaline</td>
<td>Nov 2006</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>202</td>
<td>Atropine</td>
<td>Jun 2006</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>203</td>
<td>Calcium gluconate</td>
<td>Jun 2006</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>205</td>
<td>Glucose gel</td>
<td>Sep 2004</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>207</td>
<td>Frusemide</td>
<td>Jul 2005</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>208</td>
<td>Glucagon</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>209</td>
<td>Glyceryl trinitrate</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>211</td>
<td>Hartmann's</td>
<td>Jul 2007</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>212</td>
<td>Lignocaine</td>
<td>Nov 2006</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>213</td>
<td>Metoclopramide</td>
<td>Jul 2007</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>214</td>
<td>Morphine</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>215</td>
<td>Naloxone</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>216</td>
<td>Salbutamol</td>
<td>Jul 2008</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>217</td>
<td>Sodium bicarbonate</td>
<td>Jul 2007</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>218</td>
<td>Aspirin</td>
<td>Sep 2001</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>219</td>
<td>Midazolam</td>
<td>Jul 2007</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>220</td>
<td>Methoxyflurane</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>221</td>
<td>Oxygen</td>
<td>Jul 2008</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>222</td>
<td>Paracetamol</td>
<td>Dec 2007</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>223</td>
<td>Ipratropium bromide</td>
<td>Jul 2008</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>225</td>
<td>Fentanyl</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>226</td>
<td>Benzyl penicillin</td>
<td>Jul 2007</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>227</td>
<td>Amiodarone</td>
<td>Jul 2007</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>228</td>
<td>Influenza vaccine</td>
<td>Nov 2006</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>230</td>
<td>Ibuprofen</td>
<td>Dec 2007</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>231</td>
<td>Tenecteplase</td>
<td>Jul 2008</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>232</td>
<td>Enoxaparin sodium</td>
<td>Jul 2008</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>233</td>
<td>Glucose 10%</td>
<td>Jul 2009</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>234</td>
<td>Ondansetron</td>
<td>Mar 2010</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>235</td>
<td>Fexofenadine</td>
<td>Mar 2010</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>236</td>
<td>Clopidogrel</td>
<td>Mar 2010</td>
<td>Jan 2011</td>
</tr>
<tr>
<td>237</td>
<td>Obidoxime/atropine combopen</td>
<td>NEW</td>
<td>Jan 2011</td>
</tr>
</tbody>
</table>
ADRENALINE

TYPE
Sympathomimetic

ACTION
- Stimulates the ALPHA and BETA subdivisions of the sympathetic nervous system to produce the “Fight” or “Flight” reaction
- ALPHA stimulation causes peripheral vasoconstriction. It raises the perfusion pressure of vital organs during cardiac arrest and it decreases capillary permeability and increases blood pressure in anaphylaxis
- BETA 1 stimulation causes increased myocardial excitability, tachycardia, and increased myocardial contractility
- BETA 2 stimulation causes bronchodilation

<table>
<thead>
<tr>
<th>IM</th>
<th>Onset</th>
<th>30-90 sec</th>
<th>IV</th>
<th>Onset</th>
<th>30 sec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak</td>
<td>4-10 min</td>
<td></td>
<td>Peak</td>
<td>3-5 min</td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td>5-10 min</td>
<td></td>
<td>Duration</td>
<td>5-10 min</td>
<td></td>
</tr>
</tbody>
</table>

USE
- Cardiac arrest
- Bradycardia
- Cardiogenic shock
- Asthma
- Anaphylaxis
- Croup

ADVERSE EFFECTS
- Tachycardia
- Dysrhythmias, including ventricular fibrillation
- Hypertension
- Pupillary dilation
- Anxiety
- Nausea and vomiting

PREPARATION
1mg in 1mL ampoule (1:1,000)
1mg in 10mL Min-I-Jet (1:10,000)
## DOSE

### PATIENTS ≥16 YEARS OLD

#### CARDIAC ARREST

1mg (10mL) 1:10,000 IV bolus  
Repeat every 3 minutes during resuscitation effort

2mg (2mL) 1:1,000 ETT bolus  
Repeat every 3 minutes during resuscitation effort

Maximum dose: **10mg** (10mL)

Following return of spontaneous circulation post cardiac arrest  
50mcg (0.5mL) 1:10,000 IV bolus every minute until systolic BP > 100mmHg or an adrenaline infusion is running

#### INFUSION

1mg (10mL) 1:10,000 diluted in 90mL Hartmann’s via burette with micro drip  
Commence at **5mcg/min** (30 drops per minute) and titrate to maintain a systolic BP ≥ 100mmHg

---

**ETT adrenaline must only be used if IV access is unavailable**

#### BRADYCARDIA

100mcg (1mL) 1:10,000 IV bolus  
Repeat every minute until HR > 50 and perfusion is adequate or a continuous adrenaline infusion is running

#### INFUSION

1mg (10mL) 1:10,000 diluted in 90mL Hartmann’s via burette with micro drip  
Commence at 30 drops a minute (**5mcg/min**) and titrate to maintain a systolic BP > 100 mmHg

#### CARDIOGENIC SHOCK

#### INFUSION

1mg (10mL) 1:10,000 diluted in 90mL Hartmann’s via burette with micro drip  
Commence at 30 drops a minute (**5mcg/min**) and titrate to maintain a systolic BP > 100 mmHg
# ADRENALINE PHARMACOLOGY 201

## ASTHMA / ANAPHYLAXIS

<table>
<thead>
<tr>
<th>Dose</th>
<th>Volume</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>100mcg</td>
<td>1mL</td>
<td>1:10,000 IV bolus every minute</td>
</tr>
<tr>
<td>500mcg</td>
<td>0.5mL</td>
<td>1:1,000 IM into lateral aspect of thigh</td>
</tr>
</tbody>
</table>

Adrenaline infusion may be commenced following two IV/IM administrations if indications for adrenaline persist.

### INFUSION

1mg (10mL) 1:10,000 diluted in 90mL Hartmann’s via burette with micro drip
Commence at **5mcg/min** (30 drops per minute) while indications persist

## PATIENTS ≤ 15 YEARS OLD

### CARDIAC ARREST

10mcg/kg (0.1mL/kg) 1:10,000 IV/IO bolus
Repeat every 3 minutes during resuscitation effort

100mcg/kg (0.1mL/kg) 1:1,000 ETT bolus
Maximum bolus dose **2mg** (2mL)
Repeat every 3 minutes during resuscitation effort
Maximum dose: 5 doses total

**ETT adrenaline must only be used if IV / IO access is unavailable**

### BRADYCARDIA

10mcg/kg (0.1mL/kg) 1:10,000 IV/IO bolus slowly
Maximum bolus dose **100mcg**
Repeat every 3 minutes if indications persist

### ASTHMA / ANAPHYLAXIS

10mcg/kg (0.1mL/kg) 1:10,000 IV bolus slowly
Maximum bolus dose **100mcg** (1mL)
Repeat every 5 minutes if indications persist

10mcg/kg (0.01mL/kg) 1:1,000 IM bolus
Repeat every 5 minutes if indications persist

### CROUP

500mcg/kg (0.5mL/kg) 1:1,000 NEBULISED
Maximum dose: **5mg** (5mL)
Repeat after **30** minutes if indications persist
ATROPINE

PHARMACOLOGY 202

TYPE
A parasympathetic blocker

ACTIONS
Antagonises the parasympathetic effects of acetylcholine on muscarinic receptors resulting in:

- Increased heart rate via increasing intrinsic rate of the sino-atrial node and conduction through the atrio-ventricular node
- Reducing smooth muscle contraction resulting in pupillary dilation, reduced gastrointestinal motility and reduced bladder tone
- Blocks exocrine gland activity causing decreased salivary, bronchial, gastric and sweat secretions

<table>
<thead>
<tr>
<th>IM</th>
<th>Onset</th>
<th>Depends</th>
<th>IV</th>
<th>Onset</th>
<th>&lt;2 min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak</td>
<td>On</td>
<td></td>
<td>Peak</td>
<td>&lt;5 min</td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td>Perfusion</td>
<td></td>
<td>Duration</td>
<td>2-6 hours</td>
<td></td>
</tr>
</tbody>
</table>

USE
- Asystole / pulseless bradycardia
- Bradycardia
- Excessive parasympathetic effects resulting from organophosphate poisoning or funnel-web spider Envenomation
- Nerve agent/organophosphate poisoning if authorised by ASNSW Medical Director and/or NSW Health Chief Health Officer

ADVERSE EFFECTS
- Dry mouth
- Pupillary dilation
- Tachycardia
- Nausea and vomiting
- Hyperthermia
- Dysrhythmias
- Agitation, delirium, hallucinations, seizure and coma may occur in high doses

PREPARATION
- 600mcg in 1mL polyampoule
- 600mcg in 1mL polyampoule diluted to 6mL (100mcg in 1mL) with 5mL 0.9% normal saline
- 2mg in Atropen® Auto-Injector

Note: The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services

Last Issued: April 2010
Revised: January 2011
## ATROPINE

### DOSE

**PATIENTS ≥16 YEARS OLD**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Dose</th>
<th>Repeat</th>
<th>Maximum Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASYSTOLE and PULSELESS BRADYCARDIA</td>
<td>3mg (5mL) IV/ETT undiluted bolus</td>
<td>No repeat doses</td>
<td>3mg (5mLs)</td>
</tr>
<tr>
<td>BRADYCARDIA</td>
<td>600mcg (1mL) IV undiluted bolus</td>
<td>Repeat every 60 seconds whilst indications persist</td>
<td>3mg (5mLs)</td>
</tr>
<tr>
<td>ORGANOPHOSPHATE POISONING/FUNNEL WEB SPIDER BITE</td>
<td>600mcg (1mL) IV undiluted bolus</td>
<td>Repeat every 60 seconds if indications persist</td>
<td>No maximum</td>
</tr>
<tr>
<td>ORGANOPHOSPHATE/NERVE AGENT POISOING (AUTO-INJECTOR)</td>
<td>2mg (3.3mL) IM undiluted bolus</td>
<td>Repeat every 3 minutes if indications persist</td>
<td>No maximum</td>
</tr>
</tbody>
</table>

*IM atropine should only be used where IV access is not available*

---

**Note:** The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services

Last Issued: April 2010
Revised: January 2011

Page 2 of 3
## ATROPINE PHARMACOLOGY 202

### PATIENTS ≤ 15 YEARS OLD

#### ASYSTOLE and PULSELESS BRADYCARDIA

- **20mcg/kg (0.2mL/kg) IV/ETT/IO diluted bolus**
- Repeat every 3 minutes during resuscitation effort
- Maximum dose: 3 doses total

<table>
<thead>
<tr>
<th>BRADYCARDIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 mcg/kg (0.2mL/kg) IV/IO diluted bolus</td>
</tr>
<tr>
<td>20 mcg/kg (0.03mL/kg) IM undiluted bolus</td>
</tr>
<tr>
<td>Initial bolus dose may exceed the bolus dose for ≥16 years old however may not be repeated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ORGANOPHOSPHATE POISONING/FUNNEL WEB SPIDER BITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20mcg/kg (0.2mL/kg) IV/IO diluted bolus</td>
</tr>
<tr>
<td>Maximum bolus dose <strong>600mcg</strong> (6mL)</td>
</tr>
<tr>
<td>Repeat every 60 seconds if indications persist</td>
</tr>
<tr>
<td>Maximum dose: no maximum</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ORGANOPHOSPHATE/NERVE AGENT POISONING (AUTO-INJECTOR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2mg (AtroPen® Auto-Injector) ATROPINE IM bolus</td>
</tr>
<tr>
<td>Repeat once after 30 minutes if indications persist</td>
</tr>
<tr>
<td>Maximum dose: <strong>4mg</strong></td>
</tr>
</tbody>
</table>

**IM atropine should only be used where IV access is not available**

---

Note: The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services

Last Issued: April 2010
Revised: January 2011

Page 3 of 3
CALCIUM GLUCONATE

**TYPE**
Electrolyte

**ACTION**
Antagonises the effect of hyperkalaemia on the heart

<table>
<thead>
<tr>
<th>IV</th>
<th>Onset</th>
<th>30 sec</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duration</td>
<td>30min - 2hrs</td>
</tr>
</tbody>
</table>

**USE**
Emergency treatment of hyperkalaemia as a cardio protectant

**ADVERSE EFFECTS**
- May increase myocardial and cerebral damage by increasing intracellular calcium levels
- Tissue necrosis if extravasation from vein occurs
- Dysrhythmias

**PREPARATION**
1g (10mL) vial - 10% solution

**DOSE**

<table>
<thead>
<tr>
<th>PATIENTS ≥ 16 YEARS OLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYPERKALAEMIA</td>
</tr>
<tr>
<td>1g (10mL) IV over 2 minutes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PATIENTS ≤ 15 YEARS OLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYPERKALAEMIA</td>
</tr>
<tr>
<td>20mg/kg (0.2mL/kg) IV/IO over 2 minutes</td>
</tr>
<tr>
<td>Maximum bolus dose 1g (10mL)</td>
</tr>
</tbody>
</table>

**Note:** Sodium bicarbonate and calcium gluconate precipitate when mixed together flush the line between administration of these drugs
GLUCOSE GEL

TYPE
Hypertonic sugar solution for oral use

ACTION
Principle energy source for body cells, especially the brain

PO: Onset within 15 minutes

USE
Correction of hypoglycaemia

ADVERSE EFFECTS
May precipitate Wernicke’s encephalopathy in alcoholics with thiamine deficiency

CONTRAINDICATIONS
- LOC or altered gag reflex
- Patients < 2 years old

PREPARATION
37.5g tube containing glucose gel 40% (15g glucose)

DOSE

<table>
<thead>
<tr>
<th>PATIENTS ≥ 2 YEARS OLD</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>HYPOGLYCAEMIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>15g (37.5g tube) PO</td>
</tr>
<tr>
<td>Repeat once after 15 minutes if indications persist</td>
</tr>
<tr>
<td>Maximum dose: 30g</td>
</tr>
</tbody>
</table>

When the patient regains consciousness give food to prevent recurrence of hypoglycaemia. Carbohydrates constitute the main source of energy for all body functions especially the brain. Cereals, vegetables, fruits, rice, potatoes, legumes and flour products are the main source of carbohydrates.
TYPE
Diuretic

ACTION
A potent loop diuretic which produces increase urine output

<table>
<thead>
<tr>
<th></th>
<th>IM</th>
<th></th>
<th>IV</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset</td>
<td>10 min</td>
<td></td>
<td>Onset</td>
<td>5 min</td>
</tr>
<tr>
<td>Peak</td>
<td>30 min</td>
<td></td>
<td>Peak</td>
<td>20-60 min</td>
</tr>
<tr>
<td>Duration</td>
<td>2-3 hours</td>
<td></td>
<td>Duration</td>
<td>2-3 hours</td>
</tr>
</tbody>
</table>

USE
Cardiogenic pulmonary oedema provided BP ≥ 100 mmHg systolic, to increase urine output and decrease venous return

ADVERSE EFFECTS
- Excessive diuresis can lead to hypovolaemic shock
- Potassium loss can precipitate dysrhythmias

CONTRAINDICATIONS
- BP < 100mmHg systolic
- Patients < 16 years old

PREPARATION
40mg per 4mL ampoule

DOSE

<table>
<thead>
<tr>
<th>PATIENTS ≥ 16 YEARS OLD</th>
</tr>
</thead>
</table>

CARDIOGENIC PULMONARY OEDEMA

40mg (4mL) FRUSEMIDE IV/IM slowly, for patients not taking oral diuretics
Repeat once after 10 minutes if indications persist
Maximum dose: 80mg (8mL)

80mg (8mL) FRUSEMIDE IV/IM slowly, for patients already taking oral diuretics
Repeat once after 10 minutes if indications persist
Maximum dose: 160mg (16mL)
GLUCAGON

TYPE
Pancreatic hormone

ACTION
Converts liver glycogen to glucose. Glucagon may not work if liver glycogen is depleted due to starvation or chronic liver disease

<table>
<thead>
<tr>
<th>SC/IM</th>
<th>Onset</th>
<th>4-7 min</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Peak</td>
<td>8-10 min</td>
</tr>
<tr>
<td></td>
<td>Duration</td>
<td>11-30 min</td>
</tr>
</tbody>
</table>

USE
Hypoglycaemia if unable to cannulate for administration of Glucose 10%

ADVERSE EFFECTS
• Nausea and vomiting
• Allergic reactions rarely occur

PREPARATION
1mg vial & Syringe containing 1mL of sterile water

Dissolve the glucagon powder by adding the entire contents of the syringe to the vial containing the glucagon.
The solution must be prepared immediately prior to use

DOSE

<table>
<thead>
<tr>
<th>PATIENTS ≥ 16 YEARS OLD</th>
<th>HYPOGLYCAEMIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1mg (1mL) of reconstituted solution SC/IM</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PATIENTS ≤ 15 YEARS OLD</th>
<th>HYPOGLYCAEMIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>500mcg (0.5mL) of reconstituted solution SC/IM</td>
<td></td>
</tr>
</tbody>
</table>

When the patient regains consciousness give food to prevent recurrence of hypoglycaemia. Carbohydrates constitute the main source of energy for all body functions especially the brain. Cereals, vegetables, fruits, rice, potatoes, legumes and flour products are the main source of carbohydrates.
GLYCERYL TRINITRATE

TYPE
Vasodilator

ACTION
• Dilates coronary arteries
• Dilates systemic veins and arteries
• Decreases preload, afterload and blood pressure

SL: Onset is within 2 minutes and lasts up to 30 minutes

USE
• Suspected acute coronary syndrome if symptoms of chest pain/discomfort or referred pain/discomfort is present
• Cardiogenic pulmonary oedema
• Autonomic dysreflexia

ADVERSE EFFECTS
• Hypotension
• Flushing
• Headache

CONTRAINDICATIONS
• BP <100mmHg
• Heart rate <50/min or >150/min
• Patients <16 years old
• Use of nitric oxide donors eg
  • Sildenafil - Viagra® - within 12 hours
  • Vardenafil - Levitra® - within 24 hours
  • Tadalafil - Cialis® - within 72 hours

PREPARATION
• 600mcg tablet

Discard 3 months after opening the bottle as exposure reduces potency. Bottles must have the date opened written on the label.
## GLYCERYL TRINITRATE

### PHARMACOLOGY 209

#### DOSE

**PATIENTS ≥ 16 YEARS OLD**

### SUSPECTED ACUTE CORONARY SYNDROME

<table>
<thead>
<tr>
<th>Dose</th>
<th>Instructions</th>
<th>Maximum dose</th>
<th>Regime Repeatation</th>
</tr>
</thead>
<tbody>
<tr>
<td>600mcg (1 tablet) SL</td>
<td>Repeat every 5 minutes, monitor BP closely</td>
<td>1.8mg (3 tablets)</td>
<td>30 minutes after last administration</td>
</tr>
</tbody>
</table>

**CARDIOGENIC PULMONARY OEDEMA**

<table>
<thead>
<tr>
<th>Dose</th>
<th>Instructions</th>
<th>Maximum dose</th>
<th>Regime Repeatation</th>
</tr>
</thead>
<tbody>
<tr>
<td>600mcg (1 tablet) SL</td>
<td>Repeat every 5 minutes, monitor BP closely</td>
<td>1.8mg (3 tablets)</td>
<td>30 minutes after last administration</td>
</tr>
</tbody>
</table>

**AUTONOMIC DYSREFLEXIA**

<table>
<thead>
<tr>
<th>Dose</th>
<th>Instructions</th>
<th>Maximum dose</th>
<th>Regime Repeatation</th>
</tr>
</thead>
<tbody>
<tr>
<td>300mcg (½ tablet) SL</td>
<td>Repeat every 5 minutes, monitor BP closely</td>
<td>900mcg (1.5 tablets)</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Patients with advanced age, smaller than average size or general debility should receive an initial dose of 300mcg (half a tablet) with subsequent doses of either 300mcg or 600mcg depending on response to a maximum of 1.8mg (3 tablets)
TYPE
Crystalloid solution

ACTION
Following intravenous infusion it is distributed throughout the extracellular fluid space. Approximately 25% of the volume infused stays in the intravascular space

USE
• Traumatic hypovolaemic shock with head injury
• Traumatic hypovolaemic shock with no head injury
  • Burns
  • Penetrating trauma
  • Other trauma
• Non-traumatic hypovolaemic shock
• Cardiogenic shock
• Patient sedation for synchronised cardioversion
• Rehydration / fluid replacement
  • Dehydration
  • Diving emergencies
  • Suspected meningococcal septicaemia / meningitis
  • Hyperglycaemia
  • Newborn care
• To keep IV patent and flush drugs
  • Limb realignment
  • Dysrhythmias – tachycardia
  • Cardiac arrest

ADVERSE EFFECTS
• Cardiogenic pulmonary oedema
• Coagulopathy, hypothermia and acidosis in the trauma patient

PREPARATION
1000mL bag
500mL bag
DOSE

**PATIENTS ≥13 YEARS OLD**

### TRAUMATIC HYPOVOLAEMIC SHOCK (WITH HEAD INJURY)

**Indication:** Systolic BP <100mmHg

250mL IV ALIQUOTS VIA PUMP SET

Repeat immediately until systolic BP ≥100 mmHg

This regime should be repeated to maintain systolic BP ≥100 mmHg

*In patients with traumatic brain injury hypotension is associated with poorer outcomes*

### TRAUMATIC HYPOVOLAEMIA (NO HEAD INJURY)

**Indication:** Absent radial pulse

250mL IV ALIQUOTS VIA PUMP SET

Repeat immediately until radial pulse is restored

This regime should be repeated if radial pulse is lost or becomes absent

### NON-TRAUMATIC HYPOVOLAEMIC SHOCK

**Indication:** ≥ 2 key signs of severe shock

20mL/kg IV RAPID BOLUS VIA PUMP SET

Repeat if indications persist

### CARDIOGENIC SHOCK

**Indication:** Haemodynamic compromise and systolic BP <90mmHg

10mL/kg IV BOLUS VIA PUMP SET

Repeat once 10mL/kg per hour whilst indications persist

### PATIENT SEDATION FOR SYNCHRONISED CARDIOVERSION

250mL IV bolus

Maximum dose: 250mL

### REHYDRATION / FLUID REPLACEMENT

10mL/kg IV BOLUS VIA PUMP SET

Repeat 10mL/kg per hour whilst indications persist

### KEEP IV PATENT AND FLUSH MEDICATIONS

- Keep IV patent with 20 drops per min
- Flush medications with 10-20mL IV via pump set
## PATIENTS ≤ 12 YEARS OLD

### TRAUMATIC HYPOVOLAEMIC SHOCK (WITH HEAD INJURY)

**Indication:**
- Systolic BP (<90mmHg - 6-12 years old)
- (<80mmHg - 1-5 years old)
- (<70mmHg - <1 year old)

5mL/kg IV RAPID BOLUS VIA BURETTE WITH MICRODRIP
- Maximum bolus dose: 250mL
- Repeat immediately until BP ≥ age range value
- Maximum dose: no maximum dose
- This regime should be repeated to maintain systolic BP ≥ age range value

**In patients with traumatic brain injury hypotension is associated with poorer outcomes**

### TRAUMATIC HYPOVOLAEMIA (NO HEAD INJURY)

**Indication:**
- Systolic BP (<90mmHg - 6-12 years old)
- (<80mmHg - 1-5 years old)
- (<70mmHg - <1 year old)

5mL/kg IV RAPID BOLUS VIA BURETTE WITH MICRODRIP
- Repeat if indications persist
- Maximum dose: no maximum dose

### NON-TRAUMATIC HYPOVOLAEMIC SHOCK

**Indication:**
- ≥ 2 key signs of severe shock

20mL/kg IV RAPID BOLUS VIA BURETTE WITH MICRODRIP
- Repeat if indications persist
- Maximum dose: No maximum dose

### REHYDRATION / FLUID REPLACEMENT

10mL/kg SLOW IV BOLUS VIA BURETTE WITH MICRODRIP
- Repeat 10mL/kg per hour whilst indications persist

### FLUSH MEDICATIONS

- Flush medications with 10-20mL IV via burette with microdrip

**USE CAUTION WHEN FLUSHING MEDICATIONS IN PATIENTS ≤ 15 YEARS OLD AS EXCESSIVE VOLUME ADMINISTRATION MAY INADVERTENTLY OCCUR**
LIGNOCAINE

TYPE
Antiarrhythmic and local anaesthetic agent

ACTION
Blocks sodium channels reducing ventricular excitability and pain transmission

<table>
<thead>
<tr>
<th>IV</th>
<th>Onset</th>
<th>1-4 min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak</td>
<td>5-10 min</td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td>20 min</td>
<td></td>
</tr>
</tbody>
</table>

USE
• If ventricular fibrillation/pulseless VT persists after the maximum dose of amiodarone
• Wide complex tachycardia (VT) with heart rate >180, if conscious and inadequate perfusion (patients ≤ 15 years old only)
• Local anaesthesia of the skin prior to cannulation (1% preparation only)

ADVERSE EFFECTS
• Lignocaine may cause or exacerbate ventricular dysrhythmias
• In high doses, may cause:
  • Neurological side effects (drowsiness, disorientation, agitation, muscle twitching, fits and coma)
  • Cardiac effects (hypotension, bradycardia, heart block(s) and asystole)

CONTRAINDICATIONS
• Allergy or hypersensitivity to lignocaine

PREPARATION
• Lignocaine 2% - 100mg in 5mL polyampoule for IV bolus doses
• Lignocaine 1% - 20mg in 2mL ampoule for local anaesthesia

Because two concentrations are available, read the label carefully and check this with your partner
<table>
<thead>
<tr>
<th>DOSE</th>
<th>PATIENTS ≥ 16 YEARS OLD</th>
<th>PATIENTS ≤ 15 YEARS OLD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VF OR PULSELESS VT UNRESPONSIVE TO AMIODARONE</strong></td>
<td>100mg (5mL) LIGNOCAINE 2% IV bolus</td>
<td>1mg/kg (0.05mL/kg) LIGNOCAINE 2% IV/IO bolus</td>
</tr>
<tr>
<td></td>
<td>Repeat once if indications persist</td>
<td>Repeat once if indications persist</td>
</tr>
<tr>
<td></td>
<td>Maximum dose: 200mg (10mL)</td>
<td>Maximum dose: 200mg (10mL)</td>
</tr>
<tr>
<td><strong>WIDE COMPLEX TACHYCARDIA (VT)</strong></td>
<td>1mg/kg (0.05mL/kg) LIGNOCAINE 2% IV/IO slowly over 3 minutes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If dysrhythmia persists after 5 minutes give a <strong>FURTHER</strong> 1mg/kg (0.05mL/kg) slowly over 3 minutes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum dose: 200mg (10mL)</td>
<td></td>
</tr>
</tbody>
</table>

**For local anaesthesia prior to cannulation inject a small amount of lignocaine 1% subcutaneously until the skin is raised slightly**
METOCLOPRAMIDE

TYPE
Anti-nauseant and anti-emetic

ACTION
Blocks central dopamine receptors

<table>
<thead>
<tr>
<th></th>
<th>IM Onset</th>
<th>IM Duration</th>
<th>IV Onset</th>
<th>IV Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10-15 min</td>
<td>1-2 hours</td>
<td>3-5 min</td>
<td>1-2 hours</td>
</tr>
</tbody>
</table>

USE
- First line treatment of nausea or vomiting in patients ≥ 16 years of age
- Prophylaxis to prevent vomiting in eye or spinal injuries or if the patient’s airway may be compromised due to vomiting

ADVERSE EFFECTS
- Restlessness, drowsiness and fatigue
- Extrapyramidal / acute dystonic reactions including spasm of the facial muscles, trismus, rhythmic protrusion of the tongue, abnormal speech, spasm of the extraocular muscles and unnatural positioning

CONTRAINDICATIONS
- Suspected bowel obstruction
- Suspected or known haematemesis or melaena
- Previous history of extrapyramidal / dystonic reaction
- Allergy or hypersensitivity to metoclopramide
- Patients ≤ 15 years old

PREPARATION
10mg (2mL) ampoule

DOSE

<table>
<thead>
<tr>
<th>PATIENTS ≥ 16 YEARS OLD</th>
</tr>
</thead>
</table>

10mg (2mL) IM/IV Bolus
Maximum dose: 10mg (2mL)
MORPHINE
PHARMACOLOGY 214

TYPE
Opioid analgesic

ACTION
• Decreases pain perception and anxiety
• Causes peripheral vasodilation

<table>
<thead>
<tr>
<th></th>
<th>IM Onset</th>
<th>IM Peak</th>
<th>IM Duration</th>
<th>IV Onset</th>
<th>IV Peak</th>
<th>IV Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 - 10 min</td>
<td>25 - 40 min</td>
<td>1 - 2 hours</td>
<td>2 - 5 min</td>
<td>10 min</td>
<td>1 - 2 hours</td>
</tr>
</tbody>
</table>

USE
• Pain management
• Post intubation sedation
• Patient sedation for synchronised cardioversion

ADVERSE EFFECTS
• ↓LOC
• Respiratory depression
• Hypotension
• Nausea and vomiting

CONTRAINDICATIONS
• Altered LOC (V, P or U with the exception of patients requiring post intubation sedation or synchronised cardioversion)
• Active labour
• Allergy or hypersensitivity to morphine sulphate
• IM administration for patients with burns
• Patients < 6 months old

PREPARATION
10mg in 1mL ampoule
10mg in 1mL ampoule diluted to 10mL (1mg in 1mL) with 9mL 0.9% normal saline

Note: The most current version of this document is available on the ASNSW Intranet site.
DOSE

PATIENTS ≥ 16 YEARS OLD

PAIN MANAGEMENT

2.5mg – 5mg (2.5mL – 5mL) IV diluted bolus
Repeat every 2 minutes if indications persist
Maximum dose: 0.5mg/kg

This regime can be repeated 30 minutes after last administration

5mg-10mg (0.5mL-1mL) IM undiluted bolus if IV access is not available
Repeat once after 15 minutes if indications persist
Maximum dose: 20mg (2mL)

IM morphine should only be used where IV access or IN fentanyl is not available

PATIENT SEDATION FOR SYNCHRONISED CARDIOVERSION

0.1mg/kg (0.1mL/kg) IV diluted bolus administered slowly
Maximum dose: 10mg (10mL)

POST INTUBATION SEDATION

10mg (1mL) MORPHINE mixed with 10mg (2mL) MIDAZOLAM and diluted with 7mL 0.9% normal saline to make MORPHINE/MIDAZOLAM SOLUTION (10mL)

1mL = 1mg morphine and 1 mg midazolam

2.5mL IV every 3 minutes
Maximum dose: 15mL MORPHINE/MIDAZOLAM SOLUTION

This regime can be repeated every 20 minutes after last administration

5mL IM bolus MORPHINE/MIDAZOLAM SOLUTION if IV not available
May be repeated every 15 minutes
Maximum dose: 15mL MORPHINE/MIDAZOLAM SOLUTION
PATIENTS \( \geq 6 \) MONTHS OLD TO \( \leq 15 \) YEARS OLD

PAEDIATRIC DOSE IS NOT TO EXCEED ADULT DOSE

### PAIN MANAGEMENT

100 mcg/kg (0.1mL/kg) IV/IO diluted bolus
Repeat every 5 minutes if indications persist
Maximum dose: 4 doses total

This regime can be repeated 30 minutes after last administration

100mcg/kg (0.01mL/kg) IM undiluted bolus if IV access is not available
Repeat once after 15 minutes if indications persist

IM morphine should only be used where IV access or IN fentanyl is not available

### POST INTUBATION SEDATION

10mg (1mL) MORPHINE mixed with 10mg (2mL) MIDAZOLAM and
diluted with 7mL 0.9% normal saline to make
MORPHINE/MIDAZOLAM SOLUTION (10mL)
1mL = 1mg Morphine and 1mg Midazolam

0.1mL/kg IV/IO bolus
Repeat every 3 minutes if indications persist
Maximum dose: 3 doses total MORPHINE/MIDAZOLAM SOLUTION

This regime can be repeated every 20 minutes after last administration

0.1mL/kg IM bolus
Repeat every 15 minutes if indications persist
Maximum dose: 3 doses total MORPHINE/MIDAZOLAM SOLUTION

IM absorption may be delayed in hypovolaemia or BSA greater than
15% rapid absorption may occur when perfusion is restored
IM ADMINISTRATION IS CONTRAINDICATED FOR PATIENTS WITH BURNS

NOTE: Patients with head injuries, chronic airway limitation, advanced age, smaller than average size or general debility must have their initial doses halved however maximum doses remains unchanged

---

Note: The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services
NALOXONE

TYPE
Opioid antagonist

ACTION
Reverses symptoms caused by opioid analgesics:
- Respiratory depression
- Sedation
- Hypotension

<table>
<thead>
<tr>
<th></th>
<th>IM</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset</td>
<td>2-5 min</td>
<td>1-3 min</td>
</tr>
<tr>
<td>Peak</td>
<td>10-15 min</td>
<td>10-15 min</td>
</tr>
<tr>
<td>Duration</td>
<td>20 min approx</td>
<td>15 min approx</td>
</tr>
</tbody>
</table>

USE
- Suspected narcotic overdose (non-clinical)
- Etorphine or Buprenorphine overdose
- Opioid overdose (clinical)

ADVERSE EFFECTS
- Opioid withdrawal (nausea, vomiting, sweating, tachycardia, hypertension, combative behaviour)
- Pulmonary oedema in patients with pre-existing cardiac disease
- Dysrhythmias (VT, VF)

CONTRAINDICATIONS
- Patients < 30 days old

PREPARATION
- 400mcg in 1mL ampoule
- 400mcg in 1mL ampoule diluted to 4mL (100mcg in 1mL) with 3mL of 0.9% normal saline
DOSE

PATIENTS ≥ 16 YEARS OLD

SUSPECTED NARCOTIC OVERDOSE (Non-Clinical)

800mcg (2mL) IM/IV undiluted bolus
Repeat 400mcg (1mL) bolus every 2 minutes
Maximum dose: 2mg (5mL)

OPIOID OVERDOSE (Clinical)

100mcg (1mL) IV diluted bolus
Repeat every 2 minutes until adequate clinical response

100mcg (1mL) IM diluted bolus
Repeat every 5 minutes until adequate clinical response

ETORPHINE OR BUPRENORPHINE OVERDOSE REVERSAL

2mg (5mL) IV or IM undiluted bolus
Repeat every 5 minutes until adequate clinical response
Large doses may be required
IV is the preferred route in this circumstance

PATIENTS ≥ 30 DAYS OLD to ≤ 15 YEARS OLD

SUSPECTED NARCOTIC OVERDOSE (Non-Clinical)

10mcg/kg (0.10mL/kg) IM or IV diluted bolus
Each bolus not to exceed 400mcg (4mL)
Repeat every 2 minutes
Maximum dose: 2mg (20mL)

OPIOID OVERDOSE (Clinical)

5mcg/kg (0.05mL/kg) IM/IV diluted bolus
Each bolus not to exceed 100mcg (1mL)
Repeat every 5 minutes until adequate clinical response

ETORPHINE OR BUPRENORPHINE OVERDOSE REVERSAL

10mcg/kg (0.10mL/kg) IM or IV diluted bolus
Repeat every 5 minutes until adequate clinical response
Large doses may be required. IV is the preferred route in this circumstance
ADDITIONAL INFORMATION

Opioid effects may exceed that of naloxone and renarcotisation is possible.
Therefore repeat doses may be required

Naloxone is contraindicated in neonatal patients of opioid addicted mothers
as serious withdrawal effects may occur

Hypoventilating newborns, due to maternal opiate use, will be hypercapnoeic
and naloxone may provoke dysrhythmias, seizures and pulmonary oedema

Barotrauma is a complication of BVM ventilation in small lung volumes (tidal
volume 6mL/kg ≈ 20mLs in a term infant)

COMMON OPIOID BASED MEDICATIONS

<table>
<thead>
<tr>
<th>Generic name</th>
<th>Brand name - some examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buprenorphine</td>
<td>Subutex®, Temgesic®, Norspan®</td>
</tr>
<tr>
<td>Codeine</td>
<td></td>
</tr>
<tr>
<td>Dextropropoxyphene/paracetamol</td>
<td>Di-Gesic®, Capadex®, Paradex®</td>
</tr>
<tr>
<td>Diphenoxylate/atropine</td>
<td>Lomotil®</td>
</tr>
<tr>
<td>Etorphine (veterinary drug)</td>
<td>Immobilon®</td>
</tr>
<tr>
<td>Fentanyl</td>
<td></td>
</tr>
<tr>
<td>Heroin</td>
<td></td>
</tr>
<tr>
<td>Loperamide</td>
<td>(Imodium®)</td>
</tr>
<tr>
<td>Methadone</td>
<td>Bidone Forte solution®, Physeptone tablets®</td>
</tr>
<tr>
<td>Morphine</td>
<td>Kapanol®, MS Conti®, MS Mono®, Anamorph®</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>Endone®, OxyContin®, OxyNorm®</td>
</tr>
<tr>
<td>Pentazocine</td>
<td>Fortral®</td>
</tr>
<tr>
<td>Pethidine</td>
<td></td>
</tr>
<tr>
<td>Various diarrhoea and cough medicines</td>
<td></td>
</tr>
</tbody>
</table>
TYPE
Beta 2 agonist

ACTION
Stimulates beta 2 receptors in bronchial smooth muscle resulting in bronchodilation

<table>
<thead>
<tr>
<th>NEB</th>
<th>Onset</th>
<th>2-5 min</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Peak</td>
<td>5-10 min</td>
</tr>
<tr>
<td></td>
<td>Duration</td>
<td>1-2 hours</td>
</tr>
</tbody>
</table>

USE
To relieve bronchospasm

ADVERSE EFFECTS
- Dysrhythmias in large doses
- Shakes and tremors

PREPARATION
5mg in (2.5mL) nebule
2.5mg in (2.5mL) nebule

DOSE

<table>
<thead>
<tr>
<th>PATIENTS ≥ 5 YEARS OLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELIEVE BRONCHOSPASM</td>
</tr>
<tr>
<td>5mg (2.5mL) via nebuliser at 8 litres/min oxygen</td>
</tr>
<tr>
<td>Repeat if indications persist</td>
</tr>
<tr>
<td>Maximum dose: no maximum dose</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PATIENTS ≤ 4 YEARS OLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELIEVE BRONCHOSPASM</td>
</tr>
<tr>
<td>2.5mg (2.5mL) via nebuliser at 8 litres/min oxygen</td>
</tr>
<tr>
<td>Repeat if indications persist</td>
</tr>
<tr>
<td>Maximum dose: no maximum dose</td>
</tr>
</tbody>
</table>

If patient is severe/life threatening DO NOT wait on scene for salbutamol to be effective

Because two concentrations are available, read the label carefully and check this with your partner.
SODIUM BICARBONATE

TYPE
Alkalinising solution

ACTIONS
• Reverses metabolic acidosis by buffering hydrogen ions
• Reduces plasma potassium by altering pH and causing intracellular movements of potassium ions
• Alters protein binding of tricyclics by acting on trans-membrane sodium channels

<table>
<thead>
<tr>
<th>IV Onset</th>
<th>Immediate</th>
</tr>
</thead>
</table>

USE
• Emergency treatment of hyperkalaemia
• Tricyclic overdoses with conduction delay (wide QRS complex) presenting with shock, fitting or coma

ADVERSE EFFECTS
• Metabolic alkalosis (may cause dysrhythmias)
• Hypokalaemia (may cause dysrhythmias)
• Heart failure

PREPARATION
8.4% 50mL (1mmol/mL) Min-I-Jet

DOSE

<table>
<thead>
<tr>
<th>ALL PATIENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYPERKALAEMIA &amp; TRICYCLIC OVERDOSE</td>
</tr>
<tr>
<td>1mmol/kg (1mL/kg) IV bolus</td>
</tr>
<tr>
<td>Maximum dose: 100mmol (100mL)</td>
</tr>
</tbody>
</table>

Sodium bicarbonate and calcium gluconate precipitate when mixed together. Flush the line between administration of these drugs

<table>
<thead>
<tr>
<th>Tricyclic medications - Generic</th>
<th>Tricyclic medications - Brand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amitriptyline</td>
<td>Endep®, Tryptanol®</td>
</tr>
<tr>
<td>Clomipramine</td>
<td>Anafranil®, Placil®</td>
</tr>
<tr>
<td>Dothiepin</td>
<td>Dothep®, Prothiaden®</td>
</tr>
<tr>
<td>Doxepin</td>
<td>Deptran®, Sinequan®</td>
</tr>
<tr>
<td>Imipramine</td>
<td>Tolerade®, Tolfranil®</td>
</tr>
<tr>
<td>Nortriptyline</td>
<td>Allegron®</td>
</tr>
<tr>
<td>Trimipramine</td>
<td>Surmontil®</td>
</tr>
</tbody>
</table>

Note: The most current version of this document is available on the ASNSW Intranet site.
TYPE
Non-steroidal anti-inflammatory drug

ACTIONS
• Inhibits platelet aggregation thereby limiting thrombus enlargement in acute coronary syndrome
• Reduces production of prostaglandins thereby relieving pain and fever

<table>
<thead>
<tr>
<th>PO</th>
<th>Onset</th>
<th>2-10 min</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Analgesia duration</td>
<td>3-6 hours</td>
</tr>
</tbody>
</table>

USE
Suspected acute coronary syndrome

ADVERSE EFFECTS
• Allergic reactions, eg asthma, angioneurotic oedema, rhinitis, urticaria, laryngeal oedema and shock. Always check for history of previous reaction
• Aggravation of any bleeding tendency
• Gastric irritation (unlikely to be significant with one tablet)
• Bleeding may take longer to stop

CONTRAINDICATIONS
• Allergy or hypersensitivity to aspirin
• Active, suspected or known bleeding tendency
• Patients < 16 years old

PRESENTATION
300mg tablet

DOSE

<table>
<thead>
<tr>
<th>PATIENTS ≥ 16 YEARS OLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUSPECTED ACUTE CORONARY SYNDROME</td>
</tr>
<tr>
<td>300mg (1tablet) chewed and swallowed, may be taken with a small amount of water if required</td>
</tr>
</tbody>
</table>

Aspirin administration is NOT contraindicated by either regular daily use of aspirin or warfarin
MIDAZOLAM

TYPE
Anti-convulsant and minor tranquilliser

ACTION
Reduces seizure activity and has a tranquillising and amnesic effect

<table>
<thead>
<tr>
<th>Route</th>
<th>Onset</th>
<th>Peak</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM</td>
<td>5-10 min</td>
<td>15 min</td>
<td>30 min</td>
</tr>
<tr>
<td>IV</td>
<td>1-3 min</td>
<td>10 min</td>
<td>20 min</td>
</tr>
<tr>
<td>IN</td>
<td>1-3 min</td>
<td>12 min</td>
<td>20 min</td>
</tr>
</tbody>
</table>

USE
• Control seizures
• Post intubation sedation
• Limb realignment and/or difficult extrication
• Patient management
• Patient sedation for synchronised cardioversion

**MIDAZOLAM MUST NOT TO BE USED TO ASSIST INTUBATION**

ADVERSE EFFECTS
• ↓LOC resulting in upper airway obstruction
• Respiratory and cardiovascular depression

Vital signs must be carefully monitored and equipment to support respiration must be available. Apnoea can often occur following parenteral use especially in the elderly and those with respiratory disease. Adverse effects are increased in the presence of other sedating drugs such as opiates and alcohol

PREPARATION
5mg in 1mL ampoule
5mg in 1mL ampoule diluted to 5mL (1mg in 1mL) with 4mL 0.9% normal saline
DOSE

<table>
<thead>
<tr>
<th>PATIENTS ≥ 16 YEARS OLD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SEIZURES</strong></td>
</tr>
</tbody>
</table>
| 2.5mg (2.5mL) IV diluted slow bolus  
Repeat every 3 minutes if indications persist  
Maximum dose: 15mg (15mL) |
| 5mg (1mL) IM undiluted bolus  
Repeat every 5 minutes if indications persist  
Maximum dose: 15mg (3mL) |
| **LIMB REALIGNMENT AND OR DIFFICULT EXTRICATION** |
| 1mg (1mL) IV diluted bolus  
Repeat every 3 minutes if indications persist  
Maximum dose: 5mg (5mL) |
| **PATIENT MANAGEMENT** |
| 2.5mg (2.5mL) IV diluted bolus  
Repeat every 3 minutes if indications persist  
Maximum dose: 15mg (15mL) |
| 5mg – 10mg (1mL – 2mL) IM undiluted bolus  
Repeat every 5 minutes if indications persist  
Maximum dose: 15mg (3mL) |
| **PATIENT SEDATION FOR SYNCHRONISED CARDIOVERSION** |
| 1mg (1mL) IV diluted bolus administered slowly  
Repeat every 60 seconds until patient LOC has decreased or max dose  
Maximum dose: 5mg (5mL) |
POST INTUBATION SEDATION

10mg (1mL) MORPHINE mixed with 10mg (2mL) MIDAZOLAM and diluted with 7mL 0.9% normal saline to make MORPHINE/MIDAZOLAM SOLUTION (10mL)
1mL = 1mg morphine and 1 mg midazolam

2.5mL IV every 3 minutes
Maximum dose: 15mL MORPHINE/MIDAZOLAM SOLUTION
This regime can be repeated every 20 minutes after last administration

5mL IM bolus MORPHINE/MIDAZOLAM SOLUTION if IV not available
May be repeated every 15 minutes
Maximum dose: 15mL MORPHINE/MIDAZOLAM SOLUTION

NOTE: Patients with head injuries, chronic airway limitation, advanced age, smaller than average size or general debility must have their initial doses halved however maximum doses remains unchanged

PATIENTS ≤ 15 YEARS OLD

SEIZURES

0.3mg/kg (0.06mL/kg) IN undiluted bolus via mucosal atomising device
Maximum bolus dose 5mg (1mL)
IN bolus dose may not be repeated
Maximum dose: 0.3mg/kg (0.06mL/kg)

0.15mg/kg (0.03mL/kg) IM undiluted bolus if a vein is not available
Maximum bolus dose 5mg (1mL)
Repeat every 5 minutes if indications persist
Maximum of 3 doses (0.45mg/kg total)

0.15mg/kg (0.15mL/kg) IV diluted bolus
Maximum bolus dose 2.5mg (2.5mL)
Repeat every 3 minutes if indications persist
Maximum 3 doses (0.45mg/kg total)
This regime can be repeated after 20 minutes if indications persist

Note: The most current version of this document is available on the ASNSW Intranet site.
Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services
PATIENT MANAGEMENT

0.15mg/kg (0.03mL/kg) IM undiluted bolus if a vein is not available
Maximum bolus dose 5mg (1mL)
Repeat every 5 minutes if indications persist
Maximum dose: 3 doses total (0.45mg/kg total)

0.15mg/kg (0.15mL/kg) IV diluted bolus
Maximum bolus dose 2.5mg (2.5mL)
Repeat every 3 minutes if indications persist
Maximum dose: 3 doses total (0.45mg/kg total)
This regime can be repeated after 20 minutes if indications persist

POST INTUBATION SEDATION

10mg (1mL) MORPHINE mixed with 10mg (2mL) MIDAZOLAM and diluted with 7mL 0.9% normal saline to make MORPHINE/MIDAZOLAM SOLUTION (10mL)
1mL = 1mg Morphine and 1mg Midazolam

0.1mL/kg IV/IO bolus
Repeat every 3 minutes if indications persist
Maximum dose: 3 doses total MORPHINE/MIDAZOLAM SOLUTION
This regime can be repeated every 20 minutes after last administration

0.1mL/kg IM bolus
Repeat every 15 minutes if indications persist
Maximum dose: 3 doses total MORPHINE/MIDAZOLAM SOLUTION

PAEDIATRIC BOLUS MUST NOT EXCEED THE ADULT DOSE

Oxygen must be administered to all patients receiving midazolam
**TYPE**
Inhaled analgesic

**ACTION**
Central nervous system depressant

<table>
<thead>
<tr>
<th>INH</th>
<th>Onset</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2-3 min</td>
<td>3-5 min</td>
</tr>
</tbody>
</table>

**USE**
Mild or moderate/severe pain where fentanyl/morphine is unable to be administered

**ADVERSE EFFECTS**
- ↓ LOC
- Renal damage in high doses

**CONTRAINDICATIONS**
- Malignant hyperthermia
- Untreated renal failure
- ↓ LOC – V,P or U
- Concurrent tetracycline use (eg doxycycline)
- Acutely behaviourally disturbed patients
- Pre-eclampsia or eclampsia
- Patients <1 year old

**PREPARATION**
3mL amber bottle sealed, with external inhaler

**DOSE**

<table>
<thead>
<tr>
<th>PATIENTS ≥ 1 YEAR OLD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PAIN MANAGEMENT</strong></td>
</tr>
</tbody>
</table>

3mL inhaled via inhaler
May be repeated once if indications persist
Maximum dose: 6mL (daily), 15mL (weekly)
Do not put any more than 3mL in inhaler at any time as this increases risk of droplet inhalation

3mL will remain active in the inhaler for about 30 minutes

Methoxyflurane is not contraindicated in renal dialysis patients or patients with renal colic

Oxygen should not be used in conjunction with the inhaler

Methoxyflurane can only be administered twice in any one shift per paramedic. Only 3ml of methoxyflurane can be administered at any one time in the back of the ambulance
TYPE
A natural colourless and odourless gas

ACTION
Essential element for aerobic metabolic needs and sustaining life

USES
- As a supplement in illness or injury to maintain tissue oxygenation
- Respiratory distress or hypoxia
- Simultaneous administration of other medications e.g. midazolam or morphine
- Obstetric emergencies
- Diving emergencies
- Drive gas for the administration of nebulised medications
- Hyperventilation

| Chronic obstructive pulmonary disease is not a contraindication to the administration of oxygen |

ADVERSE EFFECTS
Increases fire and explosion risk

CONTRAINDICATIONS
- Paraquat poisoning if SaO₂ >90% on room air
- Concurrent use with methoxyflurane

PREPARATION
- Black cylinders with white markings on the shoulders (prior to Feb 2011)
- White cylinders with white markings on the shoulders (post Feb 2011) containing 490 litres or 1500 litres of 100% medical oxygen
DOSE:
Routes of administration: Therapy mask, Therapy mask with reservoir bag, nebuliser, BVM (Bag Valve Mask) or ETT/LMA

<table>
<thead>
<tr>
<th>ALL PATIENTS</th>
<th>Note: All doses to be titrated up to the maximum dose listed based on patient condition and increments available on oxyviva</th>
</tr>
</thead>
<tbody>
<tr>
<td>As a supplement in illness or injury to maintain tissue oxygenation</td>
<td>Therapy mask</td>
</tr>
<tr>
<td>Any form of hypoxia and mild respiratory distress</td>
<td>Therapy mask</td>
</tr>
<tr>
<td>Moderate distress</td>
<td>Therapy mask with reservoir bag</td>
</tr>
<tr>
<td>Severe distress or hypoventilation</td>
<td>100% oxygen via BVM</td>
</tr>
<tr>
<td>Agonal respirations with ↓LOC or minimal air movement, Respiratory or cardiac arrest</td>
<td>100% oxygen via intubation, BVM or LMA</td>
</tr>
<tr>
<td>Obstetric, Diving Emergencies, Carbon Monoxide poisoning and Venous air embolism</td>
<td>100% oxygen on demand via BVM</td>
</tr>
<tr>
<td>Patients receiving midazolam</td>
<td>Therapy Mask</td>
</tr>
<tr>
<td>Hyperventilation</td>
<td>Therapy mask</td>
</tr>
</tbody>
</table>

**Oxygen saturation alone does not determine treatment.**
*Treat according to clinical presentation.*
PARACETAMOL

TYPE
Analgesic & antipyretic

ACTIONS
Temporary relief of pain and discomfort in arthritis, headache, muscular and neuralgic conditions, also reduces fever

<table>
<thead>
<tr>
<th>Route</th>
<th>Onset</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO</td>
<td>10-60 min</td>
<td>4 hours</td>
</tr>
</tbody>
</table>

USES
- Mild pain
- Low acuity patient specifically:
  - Strains and sprains of the ankle/foot and localised tooth pain

ADVERSE EFFECTS
- Nausea
- Liver failure in overdose situations

CONTRAINDICATIONS
- Allergy or hypersensitivity to paracetamol
- Multiple previous doses i.e. previous self administration within 4/24 or 4g (8 tablets) within 24 hours
- Patients <16 years old

PREPARATION
500mg Tablet

DOSE

PATIENTS ≥ 16 YEARS OLD

MILD PAIN & LOW ACUITY PATIENT

500mg – 1g (1 – 2 tablets)
May be repeated after 4 hours if indications persist
Maximum dose: 1g (2 tablets) per dose, 4g (8 tablets) in 24 hours

Patients not transported to hospital may be provided with a further 500mg – 1g (1 – 2 tablets) for self administration 4 hours post initial administration

Note: The most current version of this document is available on the ASNSW Intranet site.
IPRATROPIUM BROMIDE

TYPE
Anticholinergic bronchodilator

ACTION
• Causes bronchodilation
• Blocks vagal reflexes which mediate bronchoconstriction
• Synergistic when used in combination with salbutamol

<table>
<thead>
<tr>
<th>NEB</th>
<th>Onset</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3-5 minutes</td>
<td>2-4 hours</td>
</tr>
</tbody>
</table>

USE
To relieve bronchospasm as an adjunct to salbutamol

ADVERSE EFFECTS
Mild anticholinergic effects, eg urine retention

CONTRAINDICATIONS
• Allergy or hypersensitivity to ipratropium bromide
• Glaucoma

PREPARATION
500mcg in 1mL nebul for patients ≥ 16 years old
250mcg in 1mL nebul for patients ≤ 15 years old

PATIENTS ≥ 16 YEARS OLD
RELIEVE BRONCHOSPASM
500mcg (1mL) nebulised mixed with salbutamol
Repeat once if indications persist
Maximum dose: 1mg (2mL)

PATIENTS ≤ 15 YEARS OLD
RELIEVE BRONCHOSPASM
250mcg (1mL) nebulised mixed with salbutamol
Repeat once if indications persist
Maximum dose: 500mcg (2mL)
FENTANYL

TYPE
A lipid-soluble synthetic short acting opioid analgesic

ACTION
• Potent analgesic
• Effective drug for intranasal use because it is rapidly absorbed across mucous membranes

<table>
<thead>
<tr>
<th>IN</th>
<th>Onset</th>
<th>2-3 min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td></td>
<td>30-60 min</td>
</tr>
</tbody>
</table>

USE
Management of moderate to severe pain

ADVERSE EFFECTS
• Respiratory depression
• Hypotension
• Nausea and vomiting

CONTRAINDICATIONS
• Active labour
• Altered LOC (V, P or U)
• Epistaxis or occluded nasal passages
• Patients <1 year old
• Previous known allergy or adverse reaction

Note: Allergy to morphine is not a contraindication to fentanyl administration

PREPARATION
600mcg in 2mL in a sealed vial

ROUTE OF ADMINISTRATION
Intranasal (IN) via mucosal atomising device

DOSE
Adult and paediatric doses have been calculated to incorporate the dead space of the Mucosal Atomising Device (MAD), in the first administration (spray) which is 30mcg - 0.1mL
## FENTANYL PHARMACOLOGY 225

### PATIENTS ≥ 16 YEARS OLD

#### PAIN MANAGEMENT

180 mcg or 240 mcg IN, adjusted to patient’s size

To administer 180 mcg - spray in alternate nostrils
- First spray 120mcg (0.4mL) - patient receives 90 mcg
- Second spray 90mcg (0.3mL)

OR

To administer 240mcg - spray in alternate nostrils
- First spray 120mcg (0.4mL) - patient receives 90 mcg
- Second spray 90mcg (0.3mL)
- Third spray 60mcg (0.2mL)

Repeat every 5 minutes 60mcg – 120mcg (0.2mL – 0.4mL) if indications persist

Patients with advanced age, smaller than average size and general debility should receive an initial dose of 120 mcg

To administer 120 mcg - 2 sprays in alternate nostrils
- First spray 90mcg (0.3mL) - patient receives 60 mcg
- Second spray 60mcg (0.2mL)

Repeat every 5 minutes 60mcg (0.2mL) if indications persist

---

Note: The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services
Last Issued: July 2007
Revised: January 2011
### PATIENTS ≤ 15 YEARS OLD

#### PAIN MANAGEMENT

**PATIENTS 1 TO 3 YEARS OLD**

- **30mcg (0.1mL)** IN
  - First spray **60 mcg (0.2mL)** - patient receives **30 mcg**

Repeat every 10 minutes **30mcg** (0.1mL) if indications persist

Maximum dose: **90mcg** (0.3mL) total

This regime may be repeated after 30 minutes if indications persist

**PATIENTS 4 TO 5 YEARS OLD**

- **30mcg (0.1mL)** IN
  - First spray **60 mcg (0.2mL)** - patient receives **30 mcg**

Repeat every 5 minutes **30mcg** (0.1mL) if indications persist

Maximum dose: **90mcg** (0.3mL) total

This regime may be repeated after 30 minutes if indications persist

**PATIENTS 6 TO 15 YEARS OLD**

- **60mcg or 75mcg**, IN adjusted to patient’s size
  - To administer **60mcg** -
    - First spray **90mcg (0.3mL)** - patient receives **60mcg**
    - OR
  - To administer **75mcg** - spray in alternate nostrils
    - First spray **105mcg (0.35mL)** - patient receives **75 mcg**

Repeat every 5 minutes **30mcg** (0.1mL) if indications persist
BENZYL PENICILLIN

TYPE
Antibiotic active against a range of bacteria

ACTIONS
Inhibits bacterial cell wall synthesis and causes cytolysis when the bacterium tries to divide

USE
The initial treatment of suspected meningococcal septicaemia

ADVERSE EFFECTS
Hypersensitivity reactions may occur (including urticaria, angio-oedema, convulsions and anaphylaxis)

CONTRAINDICATION
• Allergy or hypersensitivity to penicillin

PREPARATION
600mg as a powder

Routes of administration: IV, IM or (IO paediatric)
IV: Dissolve 600mg in 10mL 0.9% normal saline
IM: Dissolve 600mg in 2mL 0.9% normal saline (volume may vary following reconstitution)

DOSE
IV or (IO paediatric) (600mg in 10mL)

<table>
<thead>
<tr>
<th>AGE</th>
<th>DOSE</th>
<th>VOLUME</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1 year</td>
<td>300mg</td>
<td>5mL</td>
</tr>
<tr>
<td>1-9 years</td>
<td>600mg</td>
<td>10mL</td>
</tr>
<tr>
<td>Adult or child ≥10 years</td>
<td>1200mg</td>
<td>20mL</td>
</tr>
</tbody>
</table>

IM (600mg in 2mL)

<table>
<thead>
<tr>
<th>AGE</th>
<th>DOSE</th>
<th>VOLUME</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1 year</td>
<td>300mg</td>
<td>1mL</td>
</tr>
<tr>
<td>1-9 years</td>
<td>600mg</td>
<td>2mL</td>
</tr>
<tr>
<td>Adult or child ≥ 10 years</td>
<td>1200mg</td>
<td>4mL</td>
</tr>
</tbody>
</table>
**Type**
Antiarrhythmic

**Actions**
- Slows the sinus rate and increases the refractory period of the AV node
- Decreases peripheral vascular resistance

<table>
<thead>
<tr>
<th>IV</th>
<th>Onset</th>
<th>2 min</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Peak</td>
<td>20 min</td>
</tr>
<tr>
<td></td>
<td>Duration</td>
<td>120 min</td>
</tr>
</tbody>
</table>

**Use**
- Ventricular fibrillation/pulseless tachycardia refractory to DC shocks and adrenaline
- Dysrhythmias - tachycardia

**Adverse Effects**
- Hypotension
- Bradycardia
- Dysrhythmias

**Preparation**
150mg in 3mL ampoule (50mg per mL)

**Dose**

<table>
<thead>
<tr>
<th>Patients ≥ 16 Years Old</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VF or Pulseless VT</strong></td>
</tr>
<tr>
<td>300mg (6mL) IV undiluted bolus</td>
</tr>
<tr>
<td>Repeat 150mg (3mL) IV undiluted bolus if indications persist</td>
</tr>
<tr>
<td>Maximum dose: 450mg (9mL)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Patients ≤ 15 Years Old</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VF or Pulseless VT</strong></td>
</tr>
<tr>
<td>5mg/kg (0.1mL/kg) undiluted IV bolus</td>
</tr>
<tr>
<td>Repeat once if indications persist</td>
</tr>
<tr>
<td>Maximum dose: 10mg/kg (0.2mL/kg)</td>
</tr>
</tbody>
</table>
TYPE
Inactivated influenza vaccine

ACTION
Induces antibodies against the surface antigens of the influenza virus

<table>
<thead>
<tr>
<th>IM</th>
<th>Onset</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2-3 weeks</td>
<td>6-12 months</td>
</tr>
</tbody>
</table>

USE
• Influenza prophylaxis for Ambulance Service of NSW staff
• Administration to the general public during an influenza pandemic, only under the express approval of the Chief Health Officer of NSW Department of Health

ADVERSE EFFECTS
• Localised reactions
• Fever
• Malaise
• Chills
• Headache
• Myalgia

CONTRAINDICATIONS
• Allergy or hypersensitivity to influenza vaccine
• Allergy or hypersensitivity to egg proteins (eggs, chicken feathers) or gentamicin
• Acute febrile illness

PREPARATION
0.5mL pre-filled syringe

DOSE

PATIENTS ≥ 16 YEARS OLD

INFLUENZA VACCINATION
Single IM dose annually before the beginning of the influenza season or at the direction of the Chief Health Officer of NSW during an influenza pandemic
The vaccine must be stored in the original pack and maintained between 2°C and 8°C until ready for use

Influenza Vaccination Program Form 181 must be completed in addition to the Patient Health Care Record

Anaphylaxis following the administration of influenza vaccine is rare however adrenaline should always be readily available
IBUPROFEN

TYPE
Ibuprofen is a non-steroidal anti-inflammatory drug

ACTION
• Inhibits the synthesis of prostaglandins which are important in the mediation of pain, fever and inflammation
• Provides anti-inflammatory and analgesic effects

<table>
<thead>
<tr>
<th>Route</th>
<th>Onset</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO</td>
<td>15-30 min</td>
<td>3-4 hours</td>
</tr>
</tbody>
</table>

USE
• Low acuity patient specifically:
  • Strains and sprains of the ankle/foot and localised tooth pain

ADVERSE EFFECTS
• Nausea, diarrhoea
• G.I irritation
• Hypersensitivity reactions may occur (e.g. anaphylaxis, asthma, angio-oedema, urticaria)

CONTRAINDICATIONS
• Active or suspected or known bleeding tendency
• Allergy or hypersensitivity to ibuprofen
• Severe asthma or history of wheeze following NSAID administration
• Pregnancy
• Severe renal impairment / renal failure
• Patients < 16 years old

PREPARATION
200mg tablet

DOSE

<table>
<thead>
<tr>
<th>PATIENTS ≥ 16 YEARS OLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>400mg (2 tablets) PO</td>
</tr>
</tbody>
</table>
May be repeated after 4 hours if indications persist
Maximum dose: **400mg** (2 tablets) per dose, **1.2g** (6 tablets) in 24 hours

Patients not transported to hospital may be provided with a further **400mg** (2 tablets) for self administration 4 hours post initial administration if authorised

Note: The most current version of this document is available on the ASNSW Intranet site.
Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services
Last Issued: December 2007
Revised: January 2011
TYPE
Recombinant tissue plasminogen activating agent

ACTIONS
- Dissolves coronary artery thrombi facilitating myocardial reperfusion
- Activates the fibrinolytic system to degrade the fibrin matrix of a thrombus

USE
ST elevation myocardial infarction (STEMI), fulfilling the pre thrombolysis checklist

ADVERSE EFFECTS
- Intracranial haemorrhage
- Reperfusion arrhythmias (usually self limiting)
- Aggravation of any bleeding tendency

CONTRAINDICATIONS
- Any exclusion per pre thrombolysis checklist
- Patients <18 years old

PREPARATION
50mg vial & syringe containing 10mL of sterile water

Dissolve the tenecteplase powder completely by adding the entire contents of the syringe containing 10mL of sterile water to the vial

The solution must be prepared immediately before use.
Avoid foaming the solution
DOSE

PATIENTS ≥ 18 YEARS OLD

Weight adjusted dose (refer to table) IV bolus to a maximum 50mg flushed with 10mL 0.9% normal saline, administered 15 minutes prior to first dose of enoxaparin

<table>
<thead>
<tr>
<th>Patients Stated Weight</th>
<th>Tenecteplase (mgs)</th>
<th>Volume of Solution (mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;60 kg</td>
<td>30 mgs</td>
<td>6mL</td>
</tr>
<tr>
<td>60 - 69 kg</td>
<td>35 mgs</td>
<td>7mL</td>
</tr>
<tr>
<td>70-79 kg</td>
<td>40 mgs</td>
<td>8mL</td>
</tr>
<tr>
<td>80 – 89 kg</td>
<td>45 mgs</td>
<td>9mL</td>
</tr>
<tr>
<td>&gt;90kg</td>
<td>50 mgs</td>
<td>10mL</td>
</tr>
</tbody>
</table>

Flush IV cannula with 10mL of 0.9% sodium chloride prior to administering tenecteplase

NOTE In addition, the IV is to be flushed with 30mL of 0.9% sodium chloride between administration of tenecteplase and enoxaparin

NOT to be administered through a line that may have contained glucose

Always complete the pre thrombolysis checklist prior to administration
ENOXAPARIN SODIUM

PHARMACOLOGY 232

TYPE
Low molecular weight antithrombotic

ACTIONS
• Reduces reinfarction & ischaemia complications after lysis of STEMI
• Inhibits thrombin generation
• Inhibits coagulation factors Xa and thrombin
• Induces a sustained release of tissue factor pathway inhibitor

USES
Anticoagulation in ST elevation myocardial infarction (STEMI), fulfilling the pre thrombolysis checklist

ADVERSE EFFECTS
• Allergic reactions, eg asthma, angioneurotic oedema, rhinitis, urticaria, laryngeal oedema and shock. Always check for history of previous reaction
• Aggravation of any bleeding tendency
• Gastric irritation (unlikely to be significant with one tablet)
• Bleeding may take longer to stop

CONTRAINDICATIONS
• Any exclusion per pre thrombolysis checklist
• Allergy or hypersensitivity to enoxaparin sodium

PREPARATION
• 60mg in 0.6mL pre filled syringes IV administration (Orange plunger)
• 100mg in 1mL pre filled syringes SC administration (Black plunger)

DOSE

PATIENTS ≥ 18 YEARS OLD

ST ELEVATION MYOCARDIAL INFARCTION
Under 75 years of age
Ensure IV is flushed with 30mL 0.9% sodium chloride prior to administration of IV enoxaparin
1st Dose - 30mg IV as a bolus and flush with 10mL of sodium chloride Administered 15 minutes after the administration of tenecteplase
2nd Dose - Weight adjusted SC 1mg/kg (to a maximum dose of 100mg) Administered 15 minutes after the 1st dose of enoxaparin
**ST ELEVATION MYOCARDIAL INFARCTION**

*Over 75 years of age*

**Nil IV Bolus**

**Weight adjusted SC 0.75mg/kg (to a maximum dose of 100mg)**

Administered 15 minutes after the administration of tenecteplase

Always complete the pre thrombolysis checklist prior to administration

DO NOT expel any air bubbles present in pre filled syringe for SC injections

**ENOXAPARIN SC DOSAGE TABLE**

<table>
<thead>
<tr>
<th>Patient’s Weight</th>
<th>Under 75 years old SC – 1mg/kg</th>
<th>75 years and above SC – 0.75 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kg</td>
<td>mg</td>
<td>mL</td>
</tr>
<tr>
<td>40</td>
<td>40</td>
<td>0.40</td>
</tr>
<tr>
<td>45</td>
<td>45</td>
<td>0.45</td>
</tr>
<tr>
<td>50</td>
<td>50</td>
<td>0.50</td>
</tr>
<tr>
<td>55</td>
<td>55</td>
<td>0.55</td>
</tr>
<tr>
<td>60</td>
<td>60</td>
<td>0.60</td>
</tr>
<tr>
<td>65</td>
<td>65</td>
<td>0.65</td>
</tr>
<tr>
<td>70</td>
<td>70</td>
<td>0.70</td>
</tr>
<tr>
<td>75</td>
<td>75</td>
<td>0.75</td>
</tr>
<tr>
<td>80</td>
<td>80</td>
<td>0.80</td>
</tr>
<tr>
<td>85</td>
<td>85</td>
<td>0.85</td>
</tr>
<tr>
<td>90</td>
<td>90</td>
<td>0.90</td>
</tr>
<tr>
<td>95</td>
<td>95</td>
<td>0.95</td>
</tr>
<tr>
<td>100</td>
<td>100</td>
<td>1.00</td>
</tr>
<tr>
<td>105</td>
<td>100</td>
<td>1.00</td>
</tr>
<tr>
<td>110</td>
<td>100</td>
<td>1.00</td>
</tr>
<tr>
<td>115</td>
<td>100</td>
<td>1.00</td>
</tr>
<tr>
<td>120</td>
<td>100</td>
<td>1.00</td>
</tr>
<tr>
<td>125</td>
<td>100</td>
<td>1.00</td>
</tr>
<tr>
<td>130</td>
<td>100</td>
<td>1.00</td>
</tr>
<tr>
<td>135</td>
<td>100</td>
<td>1.00</td>
</tr>
</tbody>
</table>
GLUCOSE 10%

TYPE
Hypertonic sugar solution for intravenous use

ACTION
Principal energy source for body cells, especially the brain

<table>
<thead>
<tr>
<th>IV</th>
<th>Onset</th>
<th>30sec</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Peak</td>
<td>30sec</td>
</tr>
<tr>
<td></td>
<td>Duration</td>
<td>Dependent on severity of hyperglycaemic episode</td>
</tr>
</tbody>
</table>

USE
Hypoglycaemia

ADVERSE EFFECTS
- Tissue necrosis if extravasation from vein occurs
- May aggravate brain damage in head injuries and strokes
- May precipitate Wernicke’s encephalopathy in alcoholics with thiamine deficiency

PREPARATION
10% - 50g per 500mL bag

DOSE

PATIENTS ≥ 11 YEARS OLD

**HYPOGLYCAEMIA**

15g (150mL) IV bolus
Repeat every 3 minutes 10g (100mL) IV if indication persist
Maximum dose: no maximum dose

PATIENTS ≤ 10 YEARS OLD

**HYPOGLYCAEMIA**

0.5g/kg (5mL/kg) IV bolus
Maximum bolus dose 15g
Repeat 0.5g/kg (5mL/kg) IV bolus if indications persist
Maximum dose: no maximum dose

**IV line MUST be flushed with 10ml 0.9% normal saline at the completion of administration or prior to the administration of other medications**

When the patient regains consciousness give food to prevent recurrence of hypoglycaemia. Carbohydrates constitute the main source of energy for all body functions especially the brain. Cereals, vegetables, fruits, rice, potatoes, legumes and flour products are the main source of carbohydrates.
ONDANSETRON

PHARMACOLOGY 234

TYPE
Anti-emetic and anti-nauseant

ACTION
Blocks central and peripheral 5-HT3 receptors

<table>
<thead>
<tr>
<th>IV</th>
<th>Onset 3-5 min</th>
<th>IM</th>
<th>Onset 10-15 min</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Duration 1-2 hours</td>
<td></td>
<td>Duration 1-2 hours</td>
</tr>
</tbody>
</table>

USE
- Nausea or vomiting in adults where metoclopramide is ineffective or contraindicated
- Nausea or vomiting in children
- Prophylaxis to prevent vomiting in eye or spinal injuries or if the patient’s airway may be compromised due to vomiting

ADVERSE EFFECTS
- Headache and/or flushing
- Seizures and movement disorders
- Visual disturbance
- Hypersensitivity reactions (including anaphylaxis)

CONTRAINDICATIONS
- Allergy or hypersensitivity to ondansetron
- Patients <2 years old

PREPARATION
4mg in 2mL ampoule

DOSE

<table>
<thead>
<tr>
<th>PATIENTS ≥ 8 YEARS OLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>4mg (2mL) IM/IV bolus</td>
</tr>
<tr>
<td>Maximum dose: 4mg (2mL)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PATIENTS ≥ 2 YEARS OLD TO ≤ 7 YEARS OLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>2mg (1mL) IM/IV bolus</td>
</tr>
<tr>
<td>Maximum dose: 2mg (1mL)</td>
</tr>
</tbody>
</table>

SLOW IV ADMINISTRATION IS PREFERED IM USE ONLY WHEN IV NOT AVAILABLE

Note: The most current version of this document is available on the ASNSW Intranet site.

Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services

Last Issued: March 2010
Revised: January 2011
FEXOFENADINE

TYPE
Anti-histamine

ACTION
Non-sedating anti histamine

<table>
<thead>
<tr>
<th>Mode</th>
<th>Onset</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO</td>
<td>15-30 min</td>
<td>12-16 hours</td>
</tr>
</tbody>
</table>

USE
Allergic reactions (localised, minor in severity)

ADVERSE EFFECTS
- Headache
- Drowsiness
- Nausea
- Dry mouth

CONTRAINDICATIONS
- Allergy or hypersensitivity to fexofenadine
- Patients ≤ 11 years old

PREPARATION
180mg tablet

DOSE

<table>
<thead>
<tr>
<th>PATIENTS ≥ 12 YEARS OLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>180mg (1 tablet) PO</td>
</tr>
<tr>
<td>Maximum dose: 180mg (1 tablet) in 24 hours</td>
</tr>
</tbody>
</table>
CLOPIDOGREL

PHARMACOLOGY 236

TYPE
Platelet receptor antagonist

ACTIONS
• Clopidogrel is a specific and potent inhibitor of platelet aggregation and limits propagation of thrombus by selectively inhibiting the binding of ADP to its platelet receptor
• Clopidogrel is absorbed from the stomach and upper small bowel and begins to inhibit platelet function within 30 minutes

<table>
<thead>
<tr>
<th>route</th>
<th>Onset</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO</td>
<td>2-10 min</td>
<td>3-6 hours</td>
</tr>
</tbody>
</table>

USES
Acute STEMI that meet the thrombolysis inclusion criteria

ADVERSE EFFECTS
• Allergic reactions, eg asthma, angioneurotic oedema, rhinitis, urticaria, laryngeal oedema and shock. Always check for history of previous reaction
• Aggravation of any bleeding tendency
• Gastric irritation (unlikely to be significant with one tablet)
• Bleeding may take longer to stop

CONTRAINDICATIONS
• Allergy or hypersensitivity to clopidogrel
• Active or suspected or known bleeding tendency
• Pregnancy or breastfeeding
• Any exclusion via pre thrombolysis checklist
• Patients <18 years old

PREPARATION
300mg tablet

DOSE

<table>
<thead>
<tr>
<th>PATIENTS ≥ 18 YEARS OLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>300mg (1 tablet) swallowed whole (with a small amount of water if required)</td>
</tr>
</tbody>
</table>

Warfarin and regular daily use of clopidogrel is not a contraindication to clopidogrel administration

Note: The most current version of this document is available on the ASNSW Intranet site.
Approved by: Medical Director, Assoc Prof Paul Middleton
Maintained by: Clinical Services
Last Issued: March 2010
Revised: January 2011
OBIDOXIME/ATROPINE AUTOINJECTOR | PHARMACOLOGY 237

TYPE
Toxic chemical nerve agent antidote

ACTION
• Manages cholinergic effects of chemical nerve agents by:
  • Promoting breakdown of excess acetylcholine by reactivating acetylcholinesterase
  • Antagonising effects of acetylcholine on muscarinic receptors

USE
Nerve agent poisoning when authorised by ASNSW Medical Commander and/or NSW Health Chief Health Officer during nerve agent incident

ADVERSE EFFECTS
• Hypertension and tachycardia
• Dysrhythmias
• Facial paraesthesia
• Headache, drowsiness and generalised weakness
• Menthol-like taste
• Nausea and vomiting

PREPARATION
220mg obidoxime chloride and 2mg atropine sulphate in 2mL Combopen®

DOSE

<table>
<thead>
<tr>
<th>PATIENTS ≥16 YEARS OLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>NERVE AGENT POISONING</td>
</tr>
<tr>
<td>220mg obidoxime chloride and 2mg atropine sulphate IM bolus</td>
</tr>
<tr>
<td>Repeat every 3 minutes if indications persist</td>
</tr>
<tr>
<td>Maximum dose: 3 doses total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PATIENTS ≤15 YEARS OLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>NERVE AGENT POISONING</td>
</tr>
<tr>
<td>220mg obidoxime chloride and 2mg atropine sulphate IM bolus</td>
</tr>
<tr>
<td>No repeat doses</td>
</tr>
</tbody>
</table>

Note: The most current version of this document is available on the ASNSW Intranet site.