**SOUTH AFRICAN ADULT HOSPITAL LEVEL ESSENTIAL MEDICINES LIST**

**CHAPTER 20: EMERGENCIES AND INJUROES**

**NEMLC RECOMMENDATIONS FROM THE MEETING OF 20 OCTOBER 2022**

**Medicine amendment recommendations, with supporting evidence and rationale are listed below.**

**Kindly review the medicine amendments in the context of the respective standard treatment guideline (STG) and supporting medicine reviews and costing analyses.**

**A: NEW STANDARD TREATMENT GUIDELINES**

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| **SECTION** | **CONDITION** | **MEDICINE MANAGEMENT** | **MEDICINE ADDED** |
| **20.11** | Rapid sequence induction and intubation | No | n/a |
| **20.11.1** | Induction agents | Yes | Propofol, IV |
| Etomidate, IV |
| Ketamine, IV |
| **20.11.2** | Muscle relaxants | Yes | Suxamethonium, IV |
| Rocuronium, IV |
| **20.11.3** | Induction agents  *-Sedation* | Yes | Midazolam, IV |
| Propofol, IV |
| Lorazepam, IV |
| *-Supplemental analgesia* | Yes | Morphine, IV |
| Fentanyl, IV |
| Ketamine, IV |

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| **20.11 RAPID SEQUENCE INDUCTION AND INTUBATION** |

The following STG was added, aligned with the Adult Hospital chapter 12: Anaesthesiology and intensive care.

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| Anaesthetic and sedative medication may only be administered by medical practitioners trained and experienced in their use. Sound theoretical and practical training followed by supervised experience in the administration of anaesthetic and sedative medication is essential. Even within the recommended dosage range, anaesthetic agents can cause death when inappropriately used.  Medicines and equipment for resuscitation should be functional and immediately available whenever general anaesthesia, regional anaesthesia or sedation is administered.  The doses of the medicines given are those recommended for healthy adults. Patients who are acutely or chronically sick, and or elderly, may require substantial reductions in the doses given otherwise life-threatening adverse effects may ensue.  Patients at risk of aspiration require a rapid sequence intubation. An IV induction agent is given through an IV line with fast running fluids, immediately followed by a rapidly acting muscle relaxant. The rapid onset of action enables the time to intubation to be short enough to avoid mask ventilation, as this can result in gastric insufflation and aspiration of gastric contents. |

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| **20.11.1 INDUCTION AGENTS** |

Propofol, IV: *added*

Etomidate, IV: *added*

Ketamine, IV: *added*

Thiopental, IV: *not added*

The following STG was added, aligned with the Adult Hospital chapter 12: Anaesthesiology and intensive care; section: 12.2.1 Intravenous induction (and/or maintenance) agents, noting that thiopental has been discontinued:

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| Respiratory depression occurs following induction of anaesthesia and ventilation should be supported as required.  Administer at appropriate doses, after consideration of patient factors and contraindications:   * Propofol is the most widely used IV induction agent but can produce hypotension. * Etomidate or ketamine is preferred in haemodynamically unstable patients. * Thiopental has a rapid onset but is contraindicated in porphyria. * Propofol, IV, 1.5–2.5 mg/kg. * Etomidate, IV, 0.3 mg/kg (0.2–0.6 mg/kg) * Ketamine, IV, 1–2 mg/kg. |

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| **20.11.2 MUSCLE RELAXANTS** |

Suxamethonium, IV: *added*

Rocuronium, IV: *added*

The following STG was added, aligned with the Adult Hospital chapter 12: Anaesthesiology and intensive care, section 12.3.1 Depolarising muscle relaxants:

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| * Suxamethonium, 1–1.5 mg/kg, IV. (See section 12.3.1: Depolarising muscle relaxants).   + Preferred agent as, in the event of a failed intubation, it wears off quickly enabling spontaneous respiration to resume.   + Contraindications to suxamethonium   + Congenital and acquired medical conditions associated with severe, potentially lethal suxamethonium-induced hyperkalaemia.   + Malignant hyperthermia.   If suxamethonium is contra-indicated, consider:   * Rocuronium, 0.9 mg/kg, IV.   + Duration +/- 60 minutes.   Sub-optimal conditions for intubating and prolonged effect can be problematic in the event of a difficult or failed intubation and if the procedure is short*.* |

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| **20.11.3 POST-INTUBATION SEDATION** |

**Sedation**

Midazolam, IV: *added*

Propofol, IV: *added*

Lorazepam, IV: *added*

The following STG text was added, aligned with the Adult Hospital chapter 23: Sedation, with amendments (highlighted in yellow):

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| Sedation requirements fluctuate rapidly and warrant regular review. Individualised sedation objectives should be clearly defined, and level of sedation regularly recorded. Sedation protocols that recognise the need for dose minimisation, weaning and sedation interruptions probably improve outcomes.  Adequate pain control is often more efficacious than sedatives for reducing agitation. The doses listed apply to ventilated patients in whom short term respiratory depression is not a concern[[1]](#footnote-1).  **Sedation**  **Short term sedation (less than 24 hours)**   * Midazolam, IV infusion, 0.05–0.2 mg/kg/hour.   **OR**  Propofol, IV infusion, 0.5 mg/kg/hour.  Note: Propofol does have cardiovascular effects; benzodiazepines  are preferred.  **Longer term sedation (expected 72 hours or more)**   * Midazolam, IV, 0.2 mg/kg/hour.   **OR**  Lorazepam, IV, 0.1 mg/kg/hour.  **Note**: Lorazepam (0.1 mg/kg/hour) is as effective (and as easy to wean) as midazolam 0.2 mg/kg/hour) but is more difficult to titrate. Due to high fat solubility, midazolam also becomes ‘long acting’ after infusions of more than 24 hours. |

**Supplemental analgesia**

Morphine, IV: *added*

Fentanyl, IV: *added*

Ketamine, IV: *added*

The following STG text was added, aligned with the Adult Hospital chapter 23: Sedation, with the addition of adjunctive ketamine in the haemodynamically unstable patient.

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| **Supplemental analgesia:**  **ADD** an analgesia to any of the above regimens:   * Morphine, IV infusion, 0.1–0.2 mg/kg/hour.   **OR**  Fentanyl, IV infusion, 1 mcg/kg/hour (also becomes long acting after prolonged infusion due to fat solubility).  **OR**  Ketamine, IV infusion, 0.5–1 mg/kg/hour.  **Note:** **If haemodynamically unstable, use adjunctive ketamine for analgosedation.** |

Refer to the medicine review for ketamine as monotherapy and adjunctive therapy for analgosedation:



**Recommendation:** The PHC/Adult Hospital Level Committee suggests the use of adjunctive ketamine for postintubation sedation in intubated adults with trauma on mechanical ventilation (conditional recommendation, low certainty of evidence.

The PHC/Adult Hospital Level Committee suggests not to use ketamine as monotherapy for postintubation sedation in intubated adults with trauma on mechanical ventilation (conditional recommendation, very low certainty of evidence).

*Rationale:* Ketamine may have benefit as adjunctive therapy but there is uncertainty for benefit and harms as monotherapy.

**Level of Evidence:** Low certainty of evidence (adjunctive), very low certainty (monotherapy)

**Review indicator:** New high-quality evidence of a clinically relevant benefit or harm

**B: PROPOSED AMENDMENTS**

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| **SECTION** | **MEDICINE/ MANAGEMENT** | **ADDED/DELETED/AMENDED/NOT ADDED/ RETAINED** | |
| * ***Cardiopulmonary resuscitation*** | | | |
| **CPR Algorithms** | Cardiac arrest algorithm for suspected communicable diseases | Added | |
| **20.1 Cardiac arrest in adults** | COVID-19 considerations guidance | Added | |
| *- Emergency treatment* | Precordial thump | Deleted | |
| **-** *Initiate fluids, IV/IO access* | Sodium chloride 0.9%, parenteral | Amended (directions for use added) | |
| **-** *Additional guidance – termination of resuscitation (TOR)* | Duration of asystole | Amended | |
| **20.2 Post cardiac arrest** | Oxygen cut-off | Amended | |
| Temperature control | Amended | |
| **-** *Hypovalaemia* | Sodium chloride 0.9%, parenteral | Amended (directions for use added) | |
| * ***Medical emergencies*** | | | |
| **20.6 Angioedema**  *- If urticaria and/or itch present (no imminent airway compromise)* | Hydrocortisone, IV | Amended (directions for use) | |
| Promethazine, IV | Amended (directions for use) | |
| Cetirizine, oral | Deleted | |
| **20.7 Anapylaxis/anaphylactic shock** | Anaphylaxis associated with COVID-19 vaccination guidance | Added | |
| **20.8 Delirium**  *- Acute management: For agitated and acutely disturbed patient* | Haloperidol, IM | Deleted | |
| Olanzapine, oral | Added | |
| Olanzapine, oro-dispersible | Added | |
| Olanzapine, IM | Added | |
| *- when patient can swallow – follow-on therapy to control behaviour* | Olanzapine, oral | Added as follow-on therapy when patient can swallow |
| Haloperidol, oral | Added as follow-on therapy when patient can swallow |
| *- Acute management: For substance withdrawal, Parkinson’s disease, or intolerability to olanzapine* | Diazepam, IV | Amended (directions for use) | |
| **-** *If alcohol withdrawal/ Wernicke’s encephalopathy suspected:* | Thiamine, parenteral | Dose & route of administration amended | |
| **20.10 Pulmonary oedema, acute**  **-** *If distressed consider adding morphine* | Morphine, IV | Deleted & caution added to the STG | |
| **20.16 Burns** | Figure to calculate body surface area % in children < 8 years | Deleted | |
| **- S***eptic burns* | Povidone iodine, topical | Retained | |
| Silver sulfadiazine, topical | Not added | |
| Mupirocin, topical | Not added | |
| Nano‐crystalline dressings | Not added | |
| Melaleuca alternifolia, topical | Not added | |
| Povidone iodine, topical | Retained | |

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| **CARDIOPULMONARY RESUSCITATION** |

**COVID-19 considerations**

Similar to the NEMLC-approved PHC emergencies and injuries chapter[[2]](#footnote-2), the STG text was updated.

Cardiac arrest algorithm for suspected communicable diseases:*added*

Resuscitation Council of South Africa’s “Advanced cardiac arrest algorithm - suspected respiratory communicable disease”,[[3]](#footnote-3) adapted with permission was included in this section – see page 3.

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| **20.1 CARDIAC ARREST IN ADULTS** |

**COVID-19 considerations**

Similar to the NEMLC-approved PHC emergencies and injuries chapter[[4]](#footnote-4), the STG text was updated.

The following text was included in the STG, aligned with guidelines:[[5]](#footnote-5)

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| 1. The infection risk that CPR poses to providers due to aerosolization of coronavirus particles is not negligible. 2. This potential risk should be weighed against the probability of achieving spontaneous return of circulation to inform the decision to initiate or stop CPR. 3. For in hospital cardiac arrest in patients with suspected COVID-19, CPR has been shown to not be beneficial unless an immediate reversible cause is suspected, e.g., dislodgement of ET tube, etc. and is therefore not recommended. 4. For out of hospital cardiac arrest in patients with suspected COVID-19, it is recommended to not start conventional CPR in unwitnessed cardiac arrest as it will likely not be beneficial. 5. Appropriate PPE should be worn by all staff before initiating CPR: FFP3 mask, visor, gloves and gown. |

Guidance regarding PPE was based on a retrospective cohort study[[6]](#footnote-6) that showed that overall, the incidence of rRT-PCR positive tests among EMS personnel following PPE protocols (wearing a mask, eye protection, gloves, and a gown) was low: 0.57 per 10,000 person-days (30 positive tests in 525,154 person-days).

**Level of Evidence: Low certainty evidence**

**Emergency treatment**

Precordial thump: *deleted*

No available could be sourced showing that precordial thumps are effective. The manoeuvre may lead to rhythm deterioration[[7]](#footnote-7) and is not included in clinical guidelines.

**Level of Evidence: Expert opinion**

The following STG text was deleted:

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| 1. ~~Where a defibrillator is not immediately available, a single powerful precordial thump is recommended for witnessed cardiac arrest.~~ |

**Initiate fluids, IV/IO access**

Sodium chloride 0.9%, parenteral: *amended – directions for use added*

Aligned with the 2019 ESC Guidelines for the diagnosis and management of acute pulmonary embolism developed in collaboration with the European Respiratory Society (ERS)[[8]](#footnote-8). Considered a moderate to good quality guideline with an overall AGREE2 assessment of 75%.

**Level of Evidence: Low certainty evidence**

STG text was amended as follows:

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| * Sodium chloride 0.9%, IV. * Administer a bolus of 1 litre during CPR if an increase in preload may benefit the patient, e.g., hypovolaemic shock, distributive shock, haemorrhagic shock. * Administer cautiously during CPR if an increase in the preload could be detrimental, e.g., massive pulmonary embolism or cardiac tamponade. |

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| Figure 21.2: Advanced cardiac arrest algorithm - suspected respiratory communicable disease *(adapted with permission from the Resuscitation Council of South Africa)* |

**Additional guidance – termination of resuscitation (TOR)**

Similar to the NEMLC-approved PHC emergencies and injuries chapter[[9]](#footnote-9), the STG text was updated.

Duration of asystole: *amended*

A more objective statement was considered for inclusion in the PHC STG, “*Asystole of >20 minutes is considered unsurvivable”.* However, there is a paucity of evidence that informs this decision and most recommendations are based on consensus.[[10]](#footnote-10)

The 2020 AHA guidelines note that in a recent meta-analysis of seven published studies (n=33,795 patients), only 0.13% (95% CI 0.03 to 0.58%) of patients who fulfilled the Basic Life Support (BLS) termination criteria survived to hospital discharge[[11]](#footnote-11). The BLS TOR rule recommends terminating resuscitation if all the following three criteria are met: the cardiac arrest was not witnessed by EMS personnel, no return of spontaneous circulation (ROSC) before transport, and no shock delivered before transport.

The 2020 AHA guidelines also note in a meta-analysis of two published studies (n=10,178), only 0.01% (95% CI, 0.00-0.07%) of patients who fulfilled the ALS termination criteria survived to hospital discharge. The ALS TOR rule recommends terminating resuscitation if all the following four criteria are fulfilled: the cardiac arrest was not witnessed, there was no bystander CPR, there was an absence of ROSC before transport, and an absence of defibrillation before transport.

Both the BLS and ALS TOR (termination of resuscitation) rules have been shown to have good predictive value.[[12]](#footnote-12)

**Level of Evidence: Low certainty evidence**

The STG text was aligned with the PHC STG text as follows:

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| **ADDITIONAL GUIDANCE** Continue CPR until spontaneous breathing and/or heartbeat returns.  Assess continuously (every 2 minutes) until the patient shows signs of recovery.  Termination of resuscitation:   1. The decision to stop CPR attempts depends on the specifics of the individual patient and should be based on clinical judgement. 2. Consider stopping resuscitation attempts and pronouncing death if there is incurable underlying disease, or if asystole > 20 minutes.   Consider carrying on for longer especially with:   * hypothermia and drowning * poisoning or medicine overdose * neurotoxic envenomation (e.g., black and green mamba or Cape cobra snakebite) – see Section 21.3.1.4: Snakebites   This decision should take into consideration the potential risk that CPR poses to the rescuer e.g., infectious diseases. |

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| **20.2 POST CARDIAC ARREST** |

Oxygen: *cut-off amended*

The cut-off for oxygen administration was made consistent with the NEMLC-approved draft PHCSTG ratified on the 24 February 2022[[13]](#footnote-13) and the extract from the respective NEMLC report below:

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| ***NEMLC MEETING OF 24 FEBRUARY 2022:***  *Refer to the evidence summary:*    ***Recommendation****: Based on this review, the PHC/Adult Hospital Level Committee recommends that the current*  *recommendation be retained for oxygen supplementation, only if saturation <94% with an additional caution not to administer oxygen if the patient is not hypoxic (conditional recommendation, moderate certainty evidence).*  *Rationale: Evidence suggests that acutely ill patients randomised to liberal oxygen therapy were more likely to die, without improving other patient outcomes. For pragmatic purposes the current recommendation of <94% be retained.*  ***Level of Evidence: Moderate certainty evidence***  ***Review indicator****: New evidence that will change the recommendation* |

**Temperature control**

The STG text was amended as follows, based on the open-label TTM1 RCT (n= 1900) with blinded outcome assessors that compared adults (with coma who had had an out-of-hospital cardiac arrest of presumed cardiac or unknown cause) undergoing hypothermia (33°C) or normothermia (≥37.8°C) found no difference in normothermia compared to hypothermia post cardiac arrest, with evidence of harm from hypothermia. [[14]](#footnote-14)

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| Aim for normothermia by preventing fever. Strictly avoid fever ~~Aim to control temperature below 36ºC in unconscious patients~~ in the first 24 hours, using physical cooling methods e.g.: ice packs and fans, and antipyretics. |

**Level of Evidence: Low certainty evidence**

*Study results:*

* At 6 months, there was no reduction in mortality - 50% (465/ 925) in the hypothermia group died vs 48% (446/ 925) in the normothermia group (RR 1.04; 95% CI 0.94 to 1.14; ARR).
* Functional assessment was similar between groups with a moderately severe disability scores of 55% in both the hypothermia and normothermia groups; RR 1.00; 95% CI, 0.92 to 1.09.
* Arrhythmia was more common in the hypothermia group vs normothermia group (24% vs. 17%, p<0.001).
* Adverse events did not differ significantly between the two groups.

Refer to the evidence summary below for detailed information:



**Hypovolaemia**

Sodium chloride 0.9%, parenteral: *amended – directions for use added*

Aligned with section 20.1: Cardiac arrest in adults (see above)

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| **20.6 ANGIOEDEMA** |

Hydrocortisone, IV: *amended, directions for use*

Promethazine, IV: *amended, directions for use*

Cetirizine, oral: *deleted*

As glucocorticoids have no proven role in the treatment of acute angioedema, the STG was amended as follows, aligned with guidelines: Anaphylaxis - a 2020 practice parameter update, systematic review, and Grading of Recommendations, Assessment, Development and Evaluation (GRADE) analysis. J Allergy Clin Immunol. The guidelines were assessed to be of good quality with an AGREE 2 score of 83%.

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| If urticaria and/or itch present (no imminent airway compromise):   * ~~Hydrocortisone, IV, 100 mg as a single dose.~~   **~~AND~~**  ~~Promethazine, IV, 25–50 mg as a single dose.~~  **~~OR~~**   * ~~Cetirizine, oral, 10 mg as a single dose.~~ * Promethazine, IM/IV, 25–50 mg as a single dose.   **ADD**   * Hydrocortisone, IV, 100 mg as a single dose. |

Level of Evidence: Low certainty

Glucocorticosteroids have a slow onset of action binding to the glucocorticoid receptor on cell membranes, translocating the glucocorticoid/glucocorticoid receptor complex to the nucleus, and then inhibit gene expression and production of new inflammatory mediators. They are nonselective and ineffective in treating acute symptoms and are associated with multiple adverse effects related to high doses and prolonged use.

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| **NEMLC RECOMMENDATION (20 OCTOBER 2022 MEETING):**  The NEMLC recommended the deletion of oral cetirizine, as oral therapy was less likely to be administered for angioedema. |

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| **20.7 ANAPHYLAXIS/ ANAPHYLACTIC SHOCK** |

Aligned with the NEMLC-approved PHC emergencies and injuries chapter[[15]](#footnote-15), as follows.

**General measures**

Guidance on anaphylaxis associated with vaccinations: *added*

Guidance was included in the STG on non-pharmacological management of anaphylaxis associated with vaccinations, aligned with WHO guidance[[16]](#footnote-16), as follows:

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| Anaphylaxis associated with vaccinations:   1. Always keep a fully equipped emergency tray at the immunisation point. 2. It is advisable to observe clients for 15 minutes after a vaccination. If a client is known with severe allergies, an observation period of 30 minutes is advised. 3. Clients who develop symptoms should be assessed for possible vaccination associated anaphylaxis by considering the following:  * If signs and symptoms are generalised – involving more than 2 body systems, manage as anaphylaxis. * If signs and symptoms are serious or life-threatening, even if only one body. system is involved, treat as anaphylaxis (including hypotension, respiratory distress significant swelling of lips or tongue). * If isolated rash in an otherwise well client, monitor for 30 minutes.  1. Clients who collapse following vaccination:  * Call for help and put patient on his/her back and raise legs. * Check if responsive – if unresponsive, commence CPR (See section 21.1) * A vasovagal episode is usually associated with a transient loss of consciousness (< 1 minute), relieved by raising the legs when supine, transient low BP and low HR. * Collapsing after vaccination usually occurs 5-10 minutes post-vaccination, but can occur up to an hour afterwards. * Treat as anaphylaxis if loss of consciousness is not brief and not relieved by raising the legs, or when any of the warning signs for anaphylaxis occur.     Table 21.5: Differences between anaphylaxis, general acute stress response and vasovagal reaction with syncope  *Source: Immunization stress-related response. A manual for program managers and health professionals to prevent, identify and respond to stress related responses following immunization. Geneva: World Health Organization; 2019.*  [*https://apps.who.int/iris/handle/10665/330277*](https://apps.who.int/iris/handle/10665/330277) |

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| **20.8 DELIRIUM** |

The subheading was simplified from “*Delirium with perceptual disturbances*” to “*Delirium*”.

**Acute management: For agitated and acutely disturbed patient**

Haloperidol, IM: *deleted*

Olanzapine, oro-dispersible: *added*

Olanzapine, IM: *added*

Olanzapine, oral: *added as follow-on therapy when patient can swallow*

Haloperidol, oral: *added as follow-on therapy when patient can swallow*

Refer to the medicine review:



**Recommendation:** The PHC/ Adult Hospital Level Committee suggests using olanzapine (oral, orodispersible and parenteral formulations) as an option to manage delirium where non-pharmacological management is not sufficient *(conditional recommendation).*

*Rationale:* Available low-quality evidence shows that haloperidol is comparable to olanzapine.

**Level of Evidence: Low to very low certainty evidence**

**Review indicator:** Evidence of harm, efficacy

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| **NEMLC RECOMMENDATION (20 OCTOBER 2022 MEETING):**  The NEMLC considered the recommendation, as proposed by the PHC/Adult Hospital Level Committee and concerns were raised regarding the feasibility of administering medication via NGT to a patient with delirium. Alternative agents were also discussed, noting the reported paucity of evidence for clotiapine and the safety concerns of droperidol (QT-prolongation).  NEMLC recommended olanzapine oro-dispersible tablet or IM for delirium with agitated and acutely disturbed behaviour Once the patient is able to swallow, to continue with oral haloperidol or olanzapine, until behaviour is contained. |

**Acute management: For substance withdrawal, Parkinson’s disease, or intolerability to olanzapine**

Diazepam, IV: *amended – directions for use*

Guidance pertaining to dosing in the elderly, “*In elderly, a starting dose of 2mg is recommended*”, was added aligned to SAMF 2022 and Maudsley Prescribing Guidelines, 13th edition.

**Level of Evidence: Guidelines**

**If alcohol withdrawal/ Wernicke’s encephalopathy suspected**

Aligned with NEMLC-approved PHC emergencies and injuries chapter[[17]](#footnote-17)– see below:

Thiamine, parenteral: *dose & route of administration amended*

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| ***NEMLC report for the PHC emergencies chapter & respective NEMLC recommendation (Meeting of 23 June 2022)***  *Refer to the evidence summary:*     * *Thiamine dose: There is limited evidence - a Cochrane review[[18]](#footnote-18) reviewed one RCT (n=169)[[19]](#footnote-19), showing that 200mg IM (once a day for 2 days) differed significantly from 500mg dose on cognitive testing post-treatment (mean difference: -17.90, 95% confidence interval -35.4 to -0.40, P = 0.04) for the prevention of . Whilst case series reports suggests a 500mg IV dose. Guideline recommendations vary, but generally use the higher dose for treatment of Wernicke’s encephalopathy.* * *Route of administration: It was noted that the SAMF[[20]](#footnote-20), 2016 as well as the British National Formulary[[21]](#footnote-21) cautions about anaphylaxis reactions associated with IV administration of thiamine; the latter citing MHRA/CHM advice, 2007:*  |  | | --- | | *IMPORTANT SAFETY INFORMATION MHRA/CHM ADVICE (SEPTEMBER 2007):*  *Although potentially serious allergic adverse reactions may rarely occur during, or shortly after, parenteral administration, the CHM has recommended that:*   * *This should not preclude the use of parenteral thiamine in patients where this route of administration is required, particularly in patients at risk of Wernicke-Korsakoff syndrome where treatment with thiamine is essential;* * *Intravenous administration should be by infusion over 30 minutes;* * *Facilities for treating anaphylaxis (including resuscitation facilities) should be available when parenteral thiamine is administered.* |  * *Pragmatic implications: Thiamine is only available as 100mg/ml vials anda large volume 5ml IM injection may be poorly tolerated by patients and possibly considered to be impractical.*   ***Recommendations:***   * *Dose be amended to a maximum of 200 mg IM in both the Adult Hospital and PHC STGs and EML for prevention of Wernicke’s encephalopathy.*  |  | | --- | | ***NEMLC MEETING OF 23 JUNE 2022:***  *NEMLC accepted the proposal to amend the dose of thiamine from “100mg” to “200mg”, aligned with available RCT evidence, for the prevention of Wernicke’s encephalopathy. NEMLC also deliberated on the route of administration and recommended that for the prevention of Wernicke’s encephalopathy, that thiamine should be administered intramuscularly and not by the intravenous route.* | |

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| **20.10 PULMONARY OEDEMA, ACUTE** |

**If distressed, consider adding morphine**

Morphine, IV: *deleted & caution added*

Aligned with NEMLC-approved PHC emergencies and injuries chapter[[22]](#footnote-22)– see below:

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| ***NEMLC report for the PHC emergencies chapter & respective NEMLC recommendation (Meeting of 23 June 2022)***  *Morphine, IV: deleted & caution added to the STG*  *Refer to the medicine review:*    ***Recommendation:*** *The PHC/Adult Hospital Level Committee**suggests not to use morphine for the treatment of acute pulmonary distress.*  *Rationale: Available evidence shows that morphine may increase in-hospital and all-cause mortality and may result in a large increase in invasive mechanical ventilation compared to not using morphine. No available data could be found on whether morphine increases non-fatal adverse events, ICU or hospital length of stay.*  ***Level of Evidence:*** *Low certainty of evidence*  ***Review indicator:*** *New high-quality evidence of a clinically relevant benefit*   |  |  | | --- | --- | | ***NEMLC MEETING OF 23 JUNE 2022:***  *NEMLC accepted the proposal to amend the remove morphine the treatment of acute pulmonary distress. However, recommended that a caution be included in the STG, accordingly:*   |  | | --- | | ***CAUTION***  *Do not use morphine for pulmonary oedema, as there is observational data providing a signal of harm.* |   *Furthermore, once the respetive chapter is finalised, it was recommended that a circular be drafted and disseminated regarding the harms associated with use of morphine for distress in pulmonary oedema.* | |

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| **20.16 BURNS** |

Figure to calculate body surface area % in children < 8 years: *deleted*

As not relevant to the Adult Hospital Level STGs and EML.

**Septic burns**

Aligned with the NEMLC-approved PHC emergencies and injuries chapter[[23]](#footnote-23), as follows:

Povidone iodine, topical: *retained*

Silver sulfadiazine, topical: *not added*

Mupirocin, topical: *not added*

Nano‐crystalline dressings: *not added*

Melaleuca alternifolia, topical: *not added*

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| ***NEMLC report for the PHC emergencies chapter & respective NEMLC recommendation (Meeting of 23 June 2022)***  *Refer to scoping review, below:*    ***Recommendation:*** *Current standard of care in the STG to be retained – topical povidone iodine for infected burns.*  *Rationale: No new evidence could be identified for alternative treatment options for septic burns.*  ***Level of Evidence:*** *Low to very low certainty*  ***Review indicator:*** *New evidence sufficient to change the recommendation*   |  | | --- | | ***NEMLC MEETING OF 23 JUNE 2022:***  *NEMLC accepted the review and proposed recommendation, but recommended that the PHC/Adult Hospital Level Committee consider reviewing other dressings for wounds, noting that this topic would be prioritised in the topic prioritisation project plan and may be reviewed in the next review cycle. Furthermore, it was noted that wound dressings are not funded from the Provincial Pharmaceutical budgets.* | |

1. Sedation protocols in intensive care: Jackson DL, Proudfoot CW, Cann KF, Walsh T. A systematic review of the impact of sedation practice in the ICU on resource use, costs and patient safety. Crit Care. 2010;14(2):R59. <http://www.ncbi.nlm.nih.gov/pubmed/20380720>

   *(Low certainty evidence, conditional recommendation)* [↑](#footnote-ref-1)
2. Minutes of the NEMLC meeting of 23 June 2022. [↑](#footnote-ref-2)
3. Resuscitation Council of South Africa. Advanced Cardiac Arrest Algorithm for Suspected Communicable Disease (Respiratory), 2021. <https://resus.co.za/>

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