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|  | **A blue and white logo  Description automatically generated**  **The 8th National Audit Project of the Royal College of Anaesthetists** |
|  | APPENDIX 6: DEFINITION OF RA/LIA-RELATED COMPLICATIONS  Version 1.0  Date: 28th April 2025 |
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Listed below are complications secondary to central and/or peripheral regional anaesthesia which are to be reported during the NAP8 case registry phase. If unsure about the inclusion of any case please discuss with the moderator via the email [nap@rcoa.ac.uk](mailto:nap@rcoa.ac.uk).

For complications listed below that occur during the registry phase:

* **The patient must be under the care of an anaesthetist or anaesthesia associate at the time of the index procedure.**
* **The complication must be related to one or more of either a central neuraxial block (epidural, caudal, spinal or CSE), a peripheral nerve block or surgical local infiltration (including wound catheters)**
  + **This includes attempted central neuraxial or peripheral nerve blocks that were abandoned for whatever reason**
  + **This includes complications related to removal of any central neuraxial or peripheral nerve catheter**
* **Unless otherwise stated in the exclusion criteria please report all complications listed below irrespective of the level of harm that occurred to the patient. The NAP8 team will classify level of harm using the information provided during the case registry report.**
* **Precise time frames have deliberately not been included for most complications to encourage reporting. Whilst some complications present immediately, others can be delayed. For many of the complications listed below reports exist of delayed presentation by up to several weeks or longer.**
  + **If the complication occurs or presents during the case registry phase but the original procedure occurred before the start of the case registry phase, PLEASE REPORT.**
  + **If the procedure takes place during the registry phase but the complication occurs or presents after the end of the case registry phase, DO NOT report.**
* ***If in any doubt report***

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| **Complication** | **Inclusion criteria** | **Exclusion criteria** | **Comments** |
| ***Either CNB or PNB*** | | | |
| Wrong route drug error | Intravascular administration of a medication that was intended for perineural, intrathecal or epidural administration  **OR**  Perineural, intrathecal or epidural administration of a medication that was intended to be administered by another route |  | NHS Never Event therefore report irrespective of whether physical or psychological harm was incurred |
| Local anaesthetic systemic toxicity (LAST) | Administration of local anaesthetic by a surgeon for anaesthesia/analgesia **AND/OR** administration of local anaesthetic by an anaesthetist, by bolus or infusion for regional anaesthesia/analgesia  **AND EITHER**  Clinical features of moderate to severe LAST e.g. seizure, loss of consciousness, cardiac arrhythmia\* or cardiac arrest  **OR**  Administration of lipid emulsion therapy | Possible local anaesthetic toxicity which did not meet a threshold of at least moderate harm (for example patient report of circumoral tingling, tinnitus)  LAST secondary to sole use of intravenous lidocaine for pain procedures or peri-operative analgesia (i.e. not in conjunction with central neuraxial block, peripheral nerve block or surgical local infiltration)  Topicalisation of airway for awake tracheal intubation where no airway nerve blocks have been performed | \* Cardiac arrythmia requiring unplanned monitoring, haemodynamic instability, and/or active intervention |
| Pneumothorax | New presence of air in the pleural cavity confirmed on radiological investigation | Pneumothorax arising as an expected outcome following surgery (for example thoracic surgery) concurrent with central neuraxial or peripheral nerve blockade |  |
| Cardiac arrest directly due to regional anaesthesia | Five or more chest compressions or use of defibrillation.  **OR**  Withdrawal of care during procedure or in recovery  **OR**  Died during anaesthesia care or in recovery | Cardiac arrest, withdrawal of care or died during procedure or treatment but cause not directly related to regional anaesthesia |  |
| Infection at site of regional anaesthesia | Infection occurring within 30 days at or near the site of a previous peripheral nerve or central neuraxial block, either single shot or catheter, leading to localised abscess, discitis, osteomyelitis, systemic infection, or necrotising fasciitis  **AND**  Required antibiotic therapy  **AND EITHER**  Positive contributory micro-organism culture taken from either blood, abscess, or site swab  **OR**  Imaging or clinical suspicion consistent with infection due to the central neuraxial or peripheral nerve block | Insertion site inflammation or localised cellulitis  **OR**  Catheter or insertion site colonisation (culture-positive perineural or epidural catheters but with no clinical evidence of site infection or requirement for antibiotic therapy)  **OR**  Vertebral canal abscess and infective meningitis (reported separately) |  |
| Anaphylaxis | Life-threatening anaphylaxis\* confirmed to be secondary to local anaesthetic, another drug mixed with the local anaesthetic administered during the central neuraxial or peripheral nerve block, or to skin preparation solutions for block performance\*\* | Anaphylaxis confirmed by allergen testing to be secondary to any drug used for sedation or general anaesthesia in a patient who had a concurrent central neuraxial or peripheral nerve block | \*Unexpected severe hypotension  **AND/OR**  Severe bronchospasm  **AND/OR**  Swelling with actual or potential airway compromise  **OR**  Cardiac arrest  \*\*Please log the anaphylaxis in the NAP8 case registry at the time of presentation. An automatic alert will be sent at 6 months to please review the patient case notes, log in and follow instructions to record if anaphylaxis has been confirmed as being secondary to any components of the regional anaesthesia technique. |
| Visceral or other organ injury | Inadvertent traumatic needling injury to a visceral or other organ, whether recognised at the time or afterwards | Vascular, neurological or pleural injury are separate complications and should be reported elsewhere | Examples include liver capsule penetration leading to haematoma during transverse abdominis plane (TAP) blockade, bowel perforation during abdominal wall block, globe perforation during peribulbar blockade |
| ***CNB*** | | | |
| High/total/complete spinal | Any patient who develops a high block in association with central neuraxial anaesthesia/analgesia which is associated with requirement for ventilatory support\* or cardiopulmonary resuscitation\*\*  **OR**  Any patient who develops a high block from epidural or intrathecal spread of local anaesthetic following a peripheral nerve block |  | \* Ventilatory support includes the additional use of ‘bag/mask’ ventilation, or ventilation assisted by the use of a supraglottic airway device or endotracheal tube  \*\*Cardiopulmonary resuscitation includes the use of basic and advanced life support |
| Respiratory failure | Any patient who develops respiratory failure due to neuraxial opioids which is associated with requirement for ventilatory support\* | Respiratory failure secondary to high/total/complete spinal should be reported elsewhere  Patients requiring supplemental oxygen or naloxone | Ventilatory support includes the additional use of ‘bag/mask’ ventilation, or ventilation assisted by the use of a supraglottic airway device or endotracheal tube |
| Vertebral canal haematoma | Confirmed new inadvertent accumulation of blood in the extra-cranial intramedullary, subdural or epidural space | Purposeful injection of blood into the epidural space performed as part of dural blood patching  **OR**  Vertebral canal haematoma presenting after spinal or neurological surgery and thought to have arisen as a surgical complication |  |
| Vertebral canal abscess | Confirmed new infection within the extra-cranial intramedullary, subdural or epidural space | Vertebral canal abscess presenting after spinal or neurological surgery and thought to have arisen as a surgical complication rather than from regional anaesthesia |  |
| Infective meningitis | Clinical or laboratory diagnosis of infective bacterial or viral meningitis | Infective meningitis presenting after spinal or neurological surgery |  |
| Adhesive arachnoiditis | Arachnoid inflammation, intrathecal scars and dural adhesions, identified on radiological imaging |  |  |
| Nerve injury after central neuraxial block | Spinal cord ischaemia or infarction  **OR**  Direct spinal cord injury  **OR**  Direct radicular or other non-cord nerve injury |  |  |
| ‘Other’ complication not listed above | Radiologically confirmed intracranial infarction or haemorrhage occurring after CNB (including but not limited to: Subdural haematoma, subarachnoid haemorrhage, intraventricular haemorrhage, cerebral venous sinus thrombosis or pituitary apoplexy)  **OR**  Radiologically confirmed Posterior Reversible Encephalopathy Syndrome (PRES)  **OR**  Cranial nerve palsy, where intracranial haemorrhage or space occupying lesion has been excluded on radiological imaging  **OR**  Any other complication secondary to central neuraxial block not listed above | Accidental dural puncture with or without epidural blood patch which does not result in any of the listed complications |  |
| ***Peripheral nerve blocks*** | | | |
| Wrong site block | A nerve block performed on the wrong patient or the wrong site, whether local anaesthetic was injected or not |  | Never event therefore report irrespective of whether physical or psychological harm was incurred |
| Phrenic nerve palsy | Unplanned requirement for non-invasive or invasive ventilation  **OR**  Confirmed unilateral diaphragmatic weakness causing functional impairment more than 48 hours after either a single shot block or removal of a nerve catheter | The need for supplemental oxygen, but no requirement for non-invasive or invasive ventilation after regional anaesthesia |  |
| Haemorrhage | Haemorrhage arising from a regional anaesthetic procedure  **AND EITHER**  Required treatment with blood products  **OR**  surgery  **OR**  interventional radiological intervention | Haemorrhage which requires observation or conservative management only (including manual pressure) |  |
| Peripheral nerve injury following peripheral nerve block | Unintended new abnormality in one or more modalities (sensory, motor, pain or autonomic) lasting more than 48 hours after either a single shot block or removal of a nerve catheter\* | Cause, agreed by local multidisciplinary clinical team to be secondary to direct surgical injury. If in doubt report | Abnormalities do not need to map to any particular nerve or radicular distribution  Neurological abnormality may be a *change* of function in any specific modality (e.g. in the sensory modality both unintended new loss of sensation and new paraesthesia should trigger reporting)  \*If a patient presents with a suspected nerve please log the nerve injury in the NAP8 database at the time of presentation. An automatic alert will be sent at 6 months to please review the patient case notes, log in and follow instructions. This information will be vital and will be used by the multidisciplinary review team to a) determine causality and b) to define the injury as permanent or not |
| ‘Other’ complication not listed above | Any other complication secondary to peripheral nerve block not listed anywhere above |  |  |