

# Diagnosis and Management of Compartment Syndrome of the Extremities

Revised July 2025

## Background and Justification:

Acute compartment syndrome (ACS) of a limb causes local tissue ischaemia due to raised pressure within a myo-fascial compartment. Early diagnosis and treatment is vital to avoid morbidity. Key clinical findings include pain out of proportion to the associated injury and pain on passive movement of the muscles of the involved compartments.

## Exclusions:

Chronic (Exertional) Compartment Syndrome.

## Standards for Practice:

1. All hospitals receiving musculoskeletal trauma should have:
  - a. training in the assessment of compartment syndrome for everyone involved in the patient pathway.
  - b. standardised recording and documentation of clinical assessments (e.g. RCN Chart \*).
  - c. clear guidance for patients with diagnostic uncertainty or where clinical assessment is not possible (e.g. impaired consciousness or regional blockade).
  - d. the capability to perform intra-compartmental pressure monitoring.
2. Assessment for ACS should be part of the routine, documented evaluation of patients presenting with limb injuries, after extremity surgery, or any prolonged surgical procedure, which may result in hypoperfusion.
3. Baseline and subsequent assessments should document time of examination, time and mechanism of injury, level of consciousness, neurological and vascular status, level of pain, and response to analgesia.
4. The dose and rate of administration of analgesics, particularly opiates, must be recorded.
5. Patients at risk of ACS should be assessed hourly with documentation of findings (whether present or not), an interpretation of these findings and rationale for management.
6. The use of regional anaesthesia in extremity trauma:
  - a. should follow joint decision making involving the patient (where able), anaesthetist and surgeon and include documented consent.
  - b. should have an agreed policy that includes responsibility for post operative monitoring for compartment syndrome\*\*.
7. Patients with symptoms or clinical signs of ACS should have circumferential dressings released to expose the skin and the limb elevated and re-evaluation within 30 minutes.
8. Patients with inconclusive clinical signs or incomplete clinical assessment should:
  - a. have documented repeated clinical examination hourly.
  - b. be considered for intracompartmental pressure measurement and recording of all suspected involved compartments with concurrent measurement of blood pressure\*\*\*.
  - c. be reviewed by a senior member of the surgical team with the capacity for decision making.
9. Immediate surgical decompression should follow a diagnosis of compartment syndrome (NCEPOD 1).
10. Surgery should involve open decompression of all involved compartments and debridement of non-viable muscle. The appearance, viability and debridement of each structure within each compartment must be documented in the operation record. A two-incision, four-compartment decompression is recommended for lower limb fasciotomies ([BOAST open fractures](#)).
11. All patients should be discussed with a plastic surgeon within 24 h of fasciotomy and undergo re-exploration within 72 hours or earlier if clinically indicated, with a documented plan for definitive soft tissue management.
12. Patients with delayed presentation or diagnosis have a high risk of complications with surgery. Decision making should involve two consultants, and non-operative management is an option accompanied by renal assessment and protection.
13. There is no consensus for the management of foot compartment syndrome. A documented justification of the management plan is required in these cases.

\* <https://www.rcn.org.uk/-/media/Royal-College-Of-Nursing/Documents/Publications/2016/September/005457.pdf>

\*\* Assessment should include either invasive monitoring or review by staff trained in regional anaesthesia and the assessment of compartment syndrome

\*\*\* A difference between the diastolic blood pressure and the compartment pressure of less than 30 mmHg indicates an increased risk of compartment syndrome. The decision to surgically decompress or continue monitoring should be made by a consultant Orthopaedic Surgeon. If the absolute compartment pressure is greater than 40 mmHg, urgent surgical decompression should be considered.