SESLHD GUIDELINE COVER SHEET

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FUNCTIONAL GROUP(S)	Surgery, Perioperative and Anaesthetics
KEY TERMS	Traction, Counter Traction, Fracture
SUMMARY	This document outlines the principles of the application and management of skin traction to ensure that patients requiring the temporary application of traction are managed safely.

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Skin Traction: Application and Management Guideline

Section 1 – Background

The purpose of this guideline is to provide consistent practice across SESLHD in line with evidence-based practice in the application and management of patients requiring skin traction.

With advances in orthopaedic surgery, fracture management more often than not, involves surgical treatment; traction is therefore used less frequently as a treatment modality than in the past. However, traction may still be used as a temporary measure to relieve pain due to muscle spasm, reduce a fracture and maintain skeletal alignment following fracture or dislocation.

Section 2 – Principles

- The application of skin traction is a specialised skill requiring training and experience. Registered and enrolled nurses who have been appropriately trained and assessed by an Orthopaedic, Emergency Department (ED) or Trauma Clinical Nurse Consultant (CNC) or Clinical Nurse Educator (CNE), may apply and manage a patient in skin traction.
- Incorrectly applied skin traction can cause considerable discomfort to the patient through increased pain and circulatory impairment, which can result in skin breakdown and nerve damage.
- Where possible, the patient requiring skin traction should be transferred to the Orthopaedic ward as soon as practical for the application of skin traction.
- The Registered Nurse (RN) / Enrolled Nurse (EN) must be able to demonstrate correct application of the traction and demonstrate an understanding of the principles of traction prior to caring for a patient requiring traction.
- It is essential that the RN/EN caring for a patient requiring skin traction can identify the contraindications of applying skin traction; for example the presence of abrasions, lacerations or superficial skin infections where skin traction is to be applied.
- An order for skin traction must be documented in the patient's electronic medical record by an Orthopaedic Registrar or Consultant indicating the type of traction, the weight required and the site and side of body the skin traction is to be applied.
- The application and ongoing management of the patient in traction must be documented in the patient's electronic medical record.
- Skin traction must be removed once every 24 hours to attend to a comprehensive skin assessment.

Section 3 – Definitions

Compartment Syndrome: A condition caused by increased pressure within a confined anatomical space resulting in decreased perfusion, hypoxia and potential necrosis of the affected tissues.

Counter traction: A pull in the opposite direction to that of the traction force.

Skin Traction: Any type of traction apparatus where the pulling force is applied to the affected body part via the skin and soft tissues. The affected area of the body is pulled in line using a pulley system attached to the bed.

Traction: The application of a pulling force applied to the limbs, pelvis or spine in order to treat muscular or skeletal disorders. The pulling force overcomes muscle spasm and shortening.

Section 4 – Responsibilities

Orthopaedic Registrar / Consultants are responsible for:

- Documenting an order for the application of limb traction stating what type of traction to be applied, weight required and the site and side of the fracture.

Orthopaedic CNC/CNEs are responsible for:

- Training and assessing RNs / ENs in the safe application and maintenance of skin traction.
- Educating RNs / ENs in the care of the patient in traction.

Registered and Enrolled Nurses:

- A registered or enrolled nurse who has successfully completed the education and practical assessment by a qualified assessor such as the Orthopaedic, ED or Trauma CNC/CNE may apply and manage a patient in traction.
- RNs/ ENs are responsible for the safe application and management of the patient requiring skin traction.
- RNs/ENs are responsible for checking the correct weights are applied as ordered by the orthopaedic team.
- RNs/ENs are responsible for removing the bandages at least once every 24 hours to clean the limb and examine the skin integrity of the patient.

Training Requirements:

- A registered nurse / enrolled nurse who has successfully completed the educational training package and practical assessment by a qualified assessor such as the Orthopaedic, ED or Trauma CNC/CNE may apply and manage a patient in skin traction.

Section 5 – Guideline

5.1 Principles of Skin Traction

- The weights are restricted to 5-7 pounds when using non-adhesive skin extensions.
- Weights should never exceed 10 pounds for skin traction as this may result in blister formation and pressure injuries.
- The grip or hold on the patient's body must be secure.
- The provision for counter traction must be maintained.
- There must be minimal friction on the traction cord and pulleys.
- The weights are hanging freely and not resting on the floor.
- The traction cord should glide easily through the pulleys.
- Once established, both the line and magnitude of the pull must be maintained.
- Only single continuous lengths of cord should run through each pulley.
- The cut ends of the cord should be taped to prevent fraying.
- Only traction cord should be used on traction as it is designed not to stretch.

5.2 Contra-indications of Skin Traction

- Any wounds, sores, abrasions or rashes in the area where skin traction is to be applied.
- Any suspicion of impaired circulation.
- A history of hypersensitive skin.
- Caution should be taken in patients with a history of conditions that pre-dispose the skin to damage and poor healing e.g. diabetes, varicose veins, peripheral vascular disease and prolonged use of steroid medications.
- Where greater than 10 pounds is required to overcome the pull of muscles in the management of fractures of the lower limb, skeletal traction should be employed.

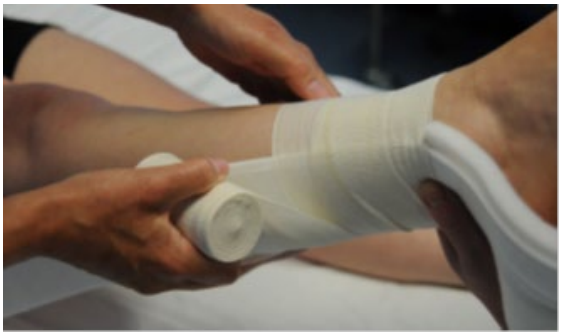
5.3. Equipment:

- Non- adhesive Skin Traction Kit
- Traction frame and pulley
- Elastoplast™ Tape
- Weights
- Scissors
- 2 trained staff - one to apply manual traction to the limb; the other to apply the skin extension bandages

5.4 Application of Skin Traction

- Explain procedure to the patient and gain verbal consent
- Ensure that an order for the application of skin traction and the weights required are documented in the patient's electronic medical record by the Orthopaedic Registrar or Consultant
- Review the radiological images to identify the location and type of fracture/ dislocation
- Prior to the procedure ensure that the patient has had adequate analgesia administered and a documented pain assessment completed
- Prepare patient in accordance with Level 1 pre-procedure requirements as per NSW Health Policy Directive PD2017_032 - Clinical Procedure Safety
- Perform hand hygiene in accordance with SESLHDPR/343 - Bare Below the Elbows - Hand Hygiene
- Perform a neurovascular assessment of both limbs for baseline observations in accordance with local appropriate local processes and/or POWHCLIN125 - Neurovascular Observations and Nursing Management of Acute Compartment Syndrome
- Check skin for cuts, abrasions, lacerations, fragile broken skin and rashes
- Apply the traction frame to the end of the patient's bed, securely
- The pulley should be placed in line with the patient's foot
- Position the patient supine with their legs extended and in slight abduction
- The assistant should apply gentle, steady manual traction to the limb
- The second nurse should then apply the skin extension
- With the foot in a neutral position the spreader plate should be positioned 10-15cm from the sole of the foot to allow for plantar flexion
- Apply skin extension to medial and lateral aspect of the limb
- The lateral extension should lie parallel to but slightly below the medial extension to minimise external rotation
- Ensure padding is over the malleoli
- Commence bandaging with two turns of the bandage 2 cm above the malleoli to anchor the bandage and avoid bandaging over the Achilles tendon to reduce the potential for pressure injuries

- Bandages should be applied over the skin extensions working from outside to inside of the leg using a straight spiral or figure of eight bandaging technique up to the tibial tuberosity
- Bandage using a 50% overlap on each turn



- Avoid bandaging over the fibula head to prevent pressure over the peroneal nerve as this can lead to foot drop
- Do not cut the bandage; excess bandage should be wrapped just below the tibial tuberosity. Secure the bandage with tape
- Pass the traction cord attached to the spreader plate over the pulley and attach the correct weight as documented by the medical officer
- Once the weight is attached, secure with a triple safety knot, such as a clove hitch or reef knot.
- Tape the cut ends of the cord above the safety knot with Elastoplast™ tape to avoid fraying

- Apply counter traction by elevating the foot of the bed (approximately 10º)
- The elevation is dependent on the weight of the patient and the traction weight. *The rationale is to prevent the patient from being pulled down the bed*
- The leg can be rested on a low pillow to elevate the heel from the bed thus reducing the risk of pressure injury to the heel
- Document the procedure including the skin assessment and neurovascular status in the patient's electronic medical record

Section 6 – Post-application Management

- Re-assessment of the patient's neurovascular status should be performed and documented immediately after the initial application of the skin traction and after any re-application of the traction
- Ongoing neurovascular assessment should be performed hourly for the first 12 hours then 2nd hourly until surgical fixation of the fracture.
- The anatomical alignment of the patient in the bed should be checked frequently to ensure the line of pull, once correctly established, is maintained
- The bandages and skin extensions should be removed while manual traction is applied to the limb at least once every 24 hours to perform a thorough skin assessment and to wash the limb. The skin assessment should be documented in the electronic medical record. Any signs of skin breakdown are to be reported to the orthopaedic team
- The traction set up should be checked once a shift to ensure clamps are secure, weights are not resting on the floor or against the bed, counter-traction is being maintained and the rope is not frayed or knotted
- Bed linen should be adjusted to maintain the patient's dignity without impeding the traction apparatus
- A trapeze (monkey bar) should be attached to the patient's bed to aid the patient to move up in the bed and to be placed onto a bedpan
- Patients should be encouraged to undertake deep breathing, upper limb strengthening and dorsi / plantar flexion exercises hourly during waking hours.

Section 7 – Documentation

- Electronic Medical Records (EMR) including charting of neurovascular observations, status of the traction set-up and detailed documentation of skin and pain assessments
- Neurovascular Observation Chart- Lower Limb

Section 8 – References

EXTERNAL REFERENCES

1	Duperouzel W, Gray B and Santy-Tomlinson J (2018) The principles of traction and the application of lower limb skin traction. *International Journal of Orthopaedic and Trauma Nursing*, Vol 29, 54-57
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3	Taylor, I (1987) *Ward manual of orthopaedic traction.* London: Churchill Livingstone

INTERNAL REFERENCES

1	NSW Health Policy Directive PD2017_032 - Clinical Procedure Safety
2	SESLHDPR/343 - Bare Below the Elbows - Hand Hygiene
3	POWHCLIN125 - Neurovascular Observations and Nursing Management of Acute Compartment Syndrome
4	POWHCLIN106 - Skin Traction: Application and Management of

Section 9 – Revision and Approval History

Date	Revision no:	Author and approval
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September 2022	Draft	Draft for comments period.
November 2022	Draft	Approved by Executive Sponsor
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