

Orthopaedic Trauma Department

SOP Title: Application of Below elbow cast

Section: General

EFFECTIVE DATE (upon approval)

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	Name	Position	Signature	Date
Author	Facility author	Designation of author		
Review				
Approval / Authorization				

Revision and Review Dates			
Date Reviewed:	Date Revised:	Version	Name

1. PURPOSE/ APPLICABILITY

1.1 Purpose:

1.2 The purpose of this SOP is to describes the process of applying a below Elbow Cast from the initial contact with the patient until the patient is out of the facility. Inappropriate application of casts can lead to discomfort of the patient, re displacement of fracture, pressure sores, compartment syndrome and mal union among other complications.

1.3 Summary(Background/Principle):

1.3.1 Effective Below elbow cast application is necessary in promoting healing, preventing deformities, ensuring that early restoration of function is achieved and minimizes operative interventions and related costs. Orthopaedic Trauma Personnel should ensure that application of below elbow cast is timely and appropriately done.

1.4 **Applicability:** All Orthopaedic Trauma personnel.

2. ABBREVIATIONS

- 2.1. CR – Casting room
- 2.2. OTT – Orthopaedic Trauma Technologists/Technicians
- 2.3.** N/A – Not Applicable
- 2.4. QA – Quality Assurance
- 2.5. QC – Quality Control
- 2.6. SOP – Standard Operating Procedure
- 2.7. GOTP – Good Orthopaedic Trauma Practice
- 2.8. A&E – Accident and Emergency
- 2.9. MOH- Ministry of Health
- 2.10. OR- Operating Room
- 2.11. PPE- Personal protective equipment
- 2.12. OSHA- Occupational safety and health administration
- 2.13. B/E Below elbow

3. TERMS/DEFINITIONS

- 3.1. Dislocation: Complete movement of the joint out of its normal position
- 3.2. Sub-laxation: Partial dislocation of the joint
- 3.3. Reduction: The process of returning a dislocated joint back to its normal position
- 3.4. Relocation: Refers to Reduction
- 3.5. Sedation: The process of administering a drug to produce a state of calm or sleep
- 3.6. Manipulation: Skillful maneuver using the hands

- 3.7. Fracture: A soft tissue injury with a break in the structural continuity of the bone
- 3.8. Traction: The application of a pulling force
- 3.9. Counter-traction: Application of force in the opposite direction

4. **EQUIPMENT AND MATERIALS** *(if applicable)*

- 4.1. Examination couch/ Orthopaedic bed
- 4.2. Disposable gowns
- 4.3. Chair
- 4.4. Gloves
- 4.5. Finger traps
- 4.6. Syringe
- 4.7. Needle/ Branular
- 4.8. Alcohol swabs
- 4.9. Lignocaine/ Diazepam/ Medazolam

5. **RESPONSIBILITIES**

5.1. **The OTTs are responsible for:**

- 5.1.1. Ensuring that Below elbow cast is timely and accurately applied in accordance with set guidelines

5.2. **The Supervisor is responsible for:**

- 5.2.1. Ensuring that all personnel involved in this process are appropriately trained and required supplies are available.

5.3. **The QA unit is responsible for:**

- 5.3.1. Periodically assessing the performance of this procedure to ensure continued compliance with Quality systems.

5.3.2. Review of documentation and records to assess conformity to GOTP standards and external regulatory policies.

6. PROCEDURES

6.1. Application of Below elbow cast

Effect and Mode of Action

6.1.1.1. Use of analgesics is paramount in ensuring the patient is calm during the procedure. Local anesthesia may also be required to effectively counter pain.

6.1.1.2. If there is need for reduction, sedation may be required. This is necessary in ensuring relaxation of muscles for effective reduction of the fracture or dislocation.

6.1.1.3. Traction and counter-traction is required to bring back dislocated joints or fractured bones into anatomical position and maintaining reduction until casting is complete. Two assistants are required for this or use finger traps with weight counter acting.

6.1.2. Preparation for the procedure

6.1.2.1. Greet the patient and Introduce yourself

6.1.2.2. Confirm the identity of the patient

6.1.2.3. Confirm the diagnosis through investigative results

6.1.2.4. Explain the diagnosis and the management plan to the patient

6.1.2.5. Obtain an informed consent from the patient/ parent/ guardian

6.1.2.6. Assemble the materials and equipment

6.1.2.7. Wear appropriate PPEs

6.1.2.8. Position the patient appropriately in the treatment room. A sitting position is most appropriate unless the patient can not sit.

- 6.1.2.9. Measure length of stockinet covering 2.5cm longer than the landmarks i.e. antecubital fossa proximally, distal palmer crease and the knuckles
- 6.1.2.10. Authorized clinician administers sedation or local anesthesia
- 6.1.2.11. Reduce fracture/ dislocation using appropriate maneuvers
- 6.1.2.12. Roll stockinet on the arm with a small hole cut to allow the thumb to protrude
- 6.1.2.13. Wrap the padding material circumferentially starting around the wrist, then the hand sparing the thumb or cuttings a small hole in the middle of the roll to pass the thumb through.
- 6.1.2.14. Apply the cast by dipping the plaster roll at an angle of 45° grasping both ends with the bulky side of the plaster up (**for the right handed the bulky side should be on the right hand and for the left handed on the left**) submerging it in the water until the bubbles cease.
- 6.1.2.15. Withdraw the plaster and give it a gentle squeeze to get rid of excess water.
- 6.1.2.16. Apply the plaster starting from the fracture site going distally and then to the proximal and overlapping each subsequent roll at 50%.
- 6.1.2.17. Mould the plaster so that the layers laminate together maintaining the reduced position of the fracture and making it cosmetic.
- 6.1.2.18. Fold down and trim excess plaster at the end of the hand so that the knuckles and palm crease are visible. The padding or stockinet should be seen at both ends of the plaster and then folded back for a smooth edge.

- 6.1.2.19. Double check that the patient's fingers can flex and extend freely.
- 6.1.2.20. Make sure that the cast is not tight.
- 6.1.2.21. Do neurovascular assessment.
- 6.1.2.22. Clean the patient and send them for a check X-ray.
- 6.1.2.23. When satisfied with the work done, give the patient instructions. (see cast care instructions in appendix)
- 6.1.2.24. Appropriately dispose waste
- 6.1.2.25. Give health education
- 6.1.2.26. Document procedure
- 6.1.2.27. Clean and set-up the room for the next patient

7. QUALITY CONTROL

- 7.1 Observe the rule of two

8. REFERENCES

8.1. WHO

8.2.

8.3. Material Safety Data Sheet (MSDS) – Phenol.

8.4. Healthcare Infection Control Practices Advisory Committee (HICPAC), Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008

9. APPENDICES:

9.1. Forms (tools to capture information)

9.1 Attachments (item for reference)

SOP Revision History

DOCUMENT CHANGE HISTORY:

Version Table:

Version	Title	SOP No.	Effective Date
1	Creation and revision of documents (SOP of SOPs)		

SOP Review Log.

Date of review.	Changes made.	Name of reviewer.	Initials/Signature.

SOP Attestation

I, the under named, have read and understand the contents of this SOP. I agree to contact my supervisor/ designee if I have any query.

	Name	Date	Initials/Sign