OPEN REDUCTION INTERNAL FIXATION

MODULE: TRAUMA AND ORTHOPAEDICS

TARGET: CT1 – ST3

BACKGROUND:

Open reduction internal fixation (ORIF) is commonly performed in the management of some fracture types. It may require the use of instruments such as drills, wires plates and/or screws to provide surgical stability to a fractured bone and support its healing. The trainee surgeon must understand the principles of fracture fixation, including the concepts of absolute and relative stability, appreciate the importance of the soft tissue injury in the management of fractures and have a knowledge of the instruments used, along with the acquisition of the dexterity and motor skills required to perform this procedure.

RELEVANT AREAS OF THE CURRICULUM

Module 2: Common Surgical Conditions

Topic – Trauma and orthopaedics
  Simple fractures and joint dislocations

Module 3: Basic surgical skills

To handle surgical instruments safely
To assist helpfully, even when the operation is not familiar

Module 6: Assessment and early treatment of the patient with trauma

To safely assess and initiate management of patients with:
  Traumatic skin and soft tissue injury
  Single or multiple fractures or dislocations

INFORMATION FOR FACULTY

LEARNING OBJECTIVES

To understand the principles of bones healing
To understand principles of internal fixation, including direct and indirect reduction, relative and absolute stability
Understand the various plate functions that can be employed, including; compression, neutralisation, buttressing and bridging.
Understand the principle of lag screw placement
To gain familiarity with the instruments and equipment used in the orthopaedic theatre
Develop motor skills required to safely use the drill, guide wires and screws
SCENE SETTING

Location: Bench-top laboratory setting (simulated Operating Theatre)

Expected duration of scenario: 1 hour  
Expected duration of debriefing: Ongoing during practice

EQUIPMENT AND CONSUMABLES

Small fragment and Basic fragment sets to include drill bits, taps, screw drivers, reduction clap along with plates and screws (Synthes or Stryker)
Bench clamps – one per two participants
Drill one per two participants
Sawbones – radius / ulna (£42) and tibia / fibula (£24) The company reps may be willing to donate Sawbones

PARTICIPANT BRIEFING

The patient has sustained a closed injury of the forearm or ankle, perform an open reduction and internal fixation.

FACULTY BRIEFING

The purpose of this simulation is to train generic techniques – principles of fracture fixation, familiarity with lag screws, locking screws, familiarity with equipment.

ADDITIONAL INFORMATION
DEBRIEFING

POINTS FOR FURTHER DISCUSSION

Stability of fracture
Indications for surgical intervention
Reduction methods
Awareness of importance of accurate reduction and fixation of intra-articular fractures
Safe technique for drill use including avoidance of over-shoot especially with regard to lag screws
**KEY POINTS**

Understand the principles of Lag screw fixation in providing inter-fragmentary compression
Appreciate the importance of protecting the soft tissues to preserve an optimum biological environment to promote fracture healing.
Gain procedural knowledge of how to plate screws using drill, depth gauge, tap and screwdriver.
Understand the rationale for selection of the most appropriate fixation technique for a given fracture, based on the physiology of the patient, the type and site of the fracture as well as the degree of accompanying soft tissue injury.

**FURTHER RESOURCES**

The AO Foundation has a web-based resource that provides an excellent overview of the various techniques that can be used to treat fractures for various different anatomical sites.
https://www2.aofoundation.org/wps/portal/surgery

Another good resource for general orthopaedic information is:
http://www.wheelessonline.com
PARTICIPANT REFLECTION

What have you learned from this experience? (Please try and list 3 things)

How will your practice now change?

What other actions will you now take to meet any identified learning needs?
PARTICIPANT FEEDBACK

Date of training session:..........................................................................................................................

Profession and grade:.................................................................................................................................

What role(s) did you play in the scenario? (Please tick)

- Primary/Initial Participant
- Secondary Participant (e.g. ‘Call for Help’ responder)
- Other health care professional (e.g. nurse/ODP)
- Other role (please specify):
  ..........................................................................................................................................................
- Observer

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I found this scenario useful</td>
<td></td>
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<td>I understand more about the scenario subject</td>
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<td>I have more confidence to deal with this scenario</td>
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<td>The material covered was relevant to me</td>
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How could this scenario be improved for future participants? This is especially important if you have ticked anything in the disagree/strongly disagree box.

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FACULTY DEBRIEF – TO BE COMPLETED BY FACULTY TEAM

What went particularly well during this scenario?

What did not go well, or as well as planned?

Why didn’t it go well?

How could the scenario be improved for future participants?