

Trauma Module



FACULTY OF MEDICAL SCIENCES
UNIVERSITY OF SRI JAYEWARDENEPURA



TRAUMA MODULE

Phase II



Faculty of Medical Sciences
University of Sri Jayewardenepura
Gangodawila
Nugegoda



INTRODUCTION

Trauma is the principle cause of death for both men and women under forty years of age, globally. It is also the leading cause of hospital admission in Sri Lanka since 1995. Deaths due to trauma have a trimodal distribution when mortality is plotted against time. A significant proportion of patients die in the second peak, due to excessive bleeding (haemorrhage), and problems in breathing (hypoxia), largely due to deficiencies in the initial management of the patient.

Availability of properly trained clinicians and conducive environment for initial management of critically injured patients has shown to reduce the mortality and morbidity of major trauma.

This module is designed to impart an understanding of specific concepts to establish resuscitative, diagnostic and treatment priorities in patients with multiple life threatening injuries. It is also expected to deliver essential knowledge of injury identification and treatment involving the entire body. Other key elements include effective communication and interaction with patients, relatives and with the support staff, commitment to ethical principles pertaining to the provision of critical care, patient confidentiality, informed consent, epidemiology, injury prevention and rehabilitation of victims of trauma.

Module Committee

Chairperson – Prof Mohan de Silva

Convener – Dr Aloka Pathirana

Members

Dr Deepaka Weerasekera

Dr Chamara Senaratne

Dr Bawantha Gamage

Dr Thejana Wijerathne

Department of Surgery

Department of Community Medicine

Department of Surgery

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General objectives

On completion of the trauma module, a graduate should

1. be able to elicit an appropriate history and perform a comprehensive physical examination relevant to the injured
2. be able to establish resuscitative, diagnostic and treatment priorities in patients with life threatening poly trauma
3. understand the concept of a trauma team
4. have basic knowledge of the evaluation, resuscitation, treatment and long term effects of injuries to the following organ systems or body areas
 - a. Head and neck
 - b. Thoracic contents including ribs and pleural space
 - c. Abdominal/pelvic viscera and diaphragm
 - d. Skeletal system
 - e. Soft tissues including skin and muscles
 - f. Vascular system
5. have the knowledge and skill to manage a patient with burns
6. have the knowledge and skill to manage pregnant and paediatric trauma victims
7. have the knowledge and skill to handle mass casualties and triage
8. have the knowledge and skill to manage war injuries
9. have effective verbal and written communication and documentation skills with relevance to trauma
10. have knowledge on importance of post-traumatic rehabilitation and outline the available methods
11. have knowledge on epidemiology of trauma with reference to Sri Lanka
12. have knowledge on methods of injury prevention
13. have knowledge on post traumatic stress disorder

Main Content Areas

1. Initial management of the critically injured
2. Thoracic trauma
3. Abdominal trauma
4. Limb trauma
5. Head injuries
6. Spinal trauma
7. Vascular trauma
8. Management of wounds
9. Burns
10. Epidemiology of trauma
11. Prevention of trauma and rehabilitation
12. Multi organ failure
13. Paediatric and obstetric trauma
14. Eye, ENT and OMF trauma

Teaching Activity	No of sessions	Total duration
Lectures (@45 min)	13	9 hours & 45 mins
FiLM/ CAL (@ 1 ½ hours)	6	9 hours
Visits (@1 ½ hours)	3	4 hours & 30 mins
Practicals in Skills Lab (@ 1 ½ hours)	5	7 hours & 30 mins
TOTAL		30 hours & 45 mins

Intermediate objectives	Content area	Learning Activity / departments	Time
To initially manage an injured patient with a view to identifying and managing life threatening injuries	<u>Introduction to ATLS</u> <ul style="list-style-type: none"> • primary survey (ABCDE) • secondary survey • establish airway and breathing management • recognition and treatment of shock – vascular access and IV fluids • neurological evaluation • reassessment • x rays • concept of trauma team and trauma shock room • documentation, ethics and informed consent 	Lectures (L1 and L2) Surgery – <i>Prof Mohan de Silva</i>	1 ½ hours
To identify common and life threatening thoracic injuries and their management	<u>Thoracic trauma</u> <ul style="list-style-type: none"> • causes of respiratory distress (e.g.– rib fractures, pneumothorax)recognition and management • life threatening chest injuries – recognition and initial management • introduction to interpretation of x rays and CT scans 	Lecture (L3) Surgery – <i>Dr B. Gamage</i>	45 minutes
To identify common and life threatening abdominal injuries and their management	<u>Abdominal Trauma</u> <ul style="list-style-type: none"> • types of injury – penetrating and blunt • investigations • decision making on need for surgery • principles of management of liver, splenic and visceral trauma • genito-urinary tract injuries • uses and interpretation of investigations – x rays, ultra sound scan (FAST), diagnostic peritoneal lavage 	Lectures (L4) Surgery – <i>Dr Deepaka Weerasekera</i>	45 minutes

<p>To recognize and manage patient with limb injuries – with a view to minimizing limb deformity, loss and disability</p>	<p><u>Limb trauma</u></p> <ul style="list-style-type: none"> • fractures and dislocations • tendon injuries • nerve injuries • pelvic fractures and associated complications • problems of major soft tissue injuries • interpretation of x rays 	<p>Lectures (L5, L6 and L7)</p> <p>Surgery – <i>Consultant Orthopaedic Surgeon</i></p>	<p>2 ¼ hour</p>
<p>To recognize and manage a patient with head injury</p>	<p><u>Head injuries</u></p> <ul style="list-style-type: none"> • types of injuries • decision making on admission • indications for referral • management of a patient with head injury in the wards • interpretation of CT scans 	<p>Lecture (L8)</p> <p>Surgery – <i>Consultant Neurosurgeon</i></p>	<p>45 minutes</p>
<p>To recognize and manage a patient with spinal injury</p>	<p><u>Spinal trauma</u></p> <ul style="list-style-type: none"> • diagnosis • initial management and transport • ward management – neurological damage • rehabilitation 	<p>Lecture (L9)</p> <p>Surgery – <i>Dr Deepaka Weerasekara</i></p>	<p>45 minutes</p>
<p>To advice on prevention and minimizing effects of burn injuries</p> <p>To assess and manage a patient with a burn injury</p>	<p><u>Burns</u></p> <ul style="list-style-type: none"> • prevention • first aid • assessment of severity • initial management • airway burns • ward management • rehabilitation 	<p>Lecture (L10) Dr. Aloka Pathirana</p> <p>FiLM 2 - IT Lab assessment of burn surface area fluid resuscitation methods of skin cover</p>	<p>45 minutes</p> <p>1 ½ hours</p>
<p>To describe the epidemiology of trauma in Sri Lanka</p>	<p>Burden of trauma</p> <ul style="list-style-type: none"> • incidence / prevalence • mortality and morbidity • trends <p>Aetiology / types and causative factors</p>	<p>Lecture (L11)</p> <p>Community Medicine</p>	<p>45 minutes</p>

	<p>Risk factors</p> <p>The economic, social and clinical impact of traumatic injury with special reference to Sri Lanka</p> <p>Sources of injury data in Sri Lanka</p>		
To describe methods of prevention (primary, secondary and tertiary)	<p><u>Prevention and control of trauma</u></p> <p>Law enforcement</p> <ul style="list-style-type: none"> • Road traffic • Occupational settings • Community and other <p>Medical screening of drivers and other occupational groups</p> <p>Environmental control and engineering</p> <ul style="list-style-type: none"> • Satisfactory maintenance of roads machinery, vehicles etc. <p>Rehabilitation</p> <ul style="list-style-type: none"> • Services available • How to access • Occupational therapy 	<p>Lecture (L12)</p> <p>Community Medicine</p>	45 minutes
To describe the principles of handling mass casualties and pre-hospital care	<ul style="list-style-type: none"> • Mass casualties • Triage principles • Principles of managing war injuries • Pre-hospital care 	<p>Lecture (L13)</p> <p>Surgery – <i>Consultant Surgeon</i></p>	45 minutes
To outline differences in managing children with trauma	<p><u>Paediatric trauma</u></p> <ul style="list-style-type: none"> • Specific issues in resuscitation and intubation • Normal values • Vascular access 	<p>FILM 1</p> <p>(Surgery)</p>	1 ½ hours
To outline differences in managing pregnant trauma patients	<p><u>Obstetric trauma</u></p> <ul style="list-style-type: none"> • Anatomical and physiological changes in pregnancy affecting assessment and evaluation • Special issues and priorities 		

To interpret x ray findings of trauma victims	<u>X rays</u> <ul style="list-style-type: none"> • Chest • Spine – cervical, thoracic and lumbar • Upper and lower limb • Abdomen and pelvis <u>CT scans</u> <ul style="list-style-type: none"> • Intracranial haemorrhages 	CAL 1 (Chest abdomen and pelvis) CAL 2 (Limbs) CAL 3 (Head and spine) – Using x rays in IT lab	3 hours
To outline the principles of management of ocular, ENT and maxillo-facial trauma	<u>Eye, ENT and OMF Trauma</u> <ul style="list-style-type: none"> • Foreign bodies in the eye • Lid lacerations • Penetrating injuries • Red eye after trauma • Foreign bodies in nose, ear • Auditory and vestibular disturbances of trauma • Facio-maxillary injuries 	FiLM 3	1 ½ hours

Visits

V1 - Visit to the NHSL – Trauma shock room concept

V 2 – Visit to the Friend in need Society – to observe the facilities available for amputees, different types of prostheses

V 3 - Visit to the orthopaedic workshop (NHSL) – to observe the various appliances that are available in the management of trauma

Skills lab activities

Practical	Activities covered	Duration
P1	ATLS – ABCDE <ul style="list-style-type: none">• Primary survey – including C spine control,• Secondary survey• Scoring systems in trauma	1 ½ hours
P2	Airway and Circulation <ul style="list-style-type: none">• endotracheal intubation,• needle cricothyroidotomy• haemorrhage control• venous access – cut down	1 ½ hours
P3	Chest and Head injury management <ul style="list-style-type: none">• needle thoracostomy• IC tube insertion• Monitoring GCS	1 ½ hours
P4	Spinal injuries and limb fractures <ul style="list-style-type: none">• stabilizing and transporting a patient with suspected spinal injury• Stabilization of fractures<ul style="list-style-type: none">a) splintingb) Slings (eg. Collar and cuff)	1 ½ hours
P5	Management of wounds <ul style="list-style-type: none">• wound cleaning, excision• suturing• local anaesthesia techniques (infiltration and ring blocks)	1 ½ hours

Recommended reading material

1. ABC of major trauma – Edited by David Skinner, Peter Driscoll and Richard Earlam. Publisher – British Medical Journal
2. Outline of fractures – John Crawford Adams. Publisher – Churchill Livingstone