Spinal Immobilization Techniques and Decision Making Returning to Common Sense Approaches to Patient Care Jim Augustine, M.D.

Presentation Objectives Present scenarios for immobilization devices and techniques Discuss strategies for patients with needs for immobilization and spinal motion restriction Differentiate risks and immobilization strategies for patients with cervical, thoracic, lumbar, or multiple-level spinal injuries Review management strategies for integrated approaches in this patient group

Emergency Care Principle: First, Do No Harm

Changing Approaches Backboard (LBB) Immobilization is Uncomfortable LBB Can Result in Airway Loss, Breathing Problems, and Pulmonary Edema LBB Can Harm Patients Skin, Causing Lengthy Complications

Appropriate Use of LBB Moving a Patient Safely across a horizontal set of surfaces Assist in moving a patient vertically As a platform for safe restraint As the platform for lumbar spine and pelvic motion restriction For entire body packaging and SMR

Restraining vs. Packaging Restraining Restraining Restraining Restraining Restraining Restraining to Safety and for Medical Needs Security Restraining to Protect the Crew and the Patient Law Enforcement Restraining Under Arrest in Control of Police Chemical Restraints used in Selected Impaired Patients Packaging Medical Packaging – Based on Medical Need Hypoglycemia Dementia Excited Delirium Hypoxia Trauma Packaging – Patients having: Spinal Trauma Multiple Trauma Multiple Trauma Severe Extremity Trauma

Restraining Use of Devices for Security and Safety Security Packaging – Not in Custody Protect the Crew and the Patient – for Mental Health Impaired Patients Law Enforcement Packaging – In Custody - Under Arrest in Control of Police. Use Law Enforcement Restraints in Presence of a Law Enforcement Officer

Priority Setting Protect Patient's Life Protect Limbs Protect Crew Restraint for Medical Indication Restraint for Mental Health Restraint as part of Law Enforcement Control of Patient

Medical Restraint Packaging by Restraining Hands, Torso (Dementia, Hypoglycemia, Excited Delirium) Packaging on LBB whole spine, arms Selective Spinal Restriction for Trauma – Entire Spine Selective Immobilizing Cervical, Thoracic, or Lumbar Spine, based on mechanism and patient complaint

Selective Immobilization Entire Spine – Mechanism of Whole Body Trauma Cervical for Head, Whiplash, Neck Trauma Thoracic for blunt or penetrating mechanism to torso Lumbar Spine for low back, pelvis, and lower extremity trauma

Cervical Spinal Motion Restriction Mechanisms of Head, Whiplash, or Neck Trauma Protect Airway Don't Worsen any Injuries Options One Piece Collar Two Piece Collar Tall Collar – "X Collar" Short backboard – solid or flexible

Thoracic Spinal Motion Restriction ■ Mechanism of blunt or penetrating trauma to torso ■ Options ■ Short backboard ■ Long backboard – solid or flexible

PATIENT POSITIONING

4

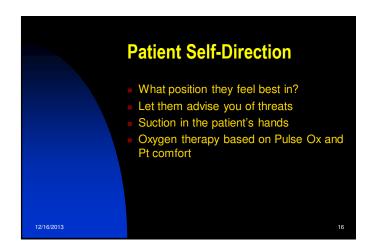
Controversy – Immobilizing in Penetrating Torso Trauma Trauma literature says poor outcomes from use of long backboard in penetrating trauma to torso Unless neuro deficit at the scene Likely due to: ◆ Longer time on scene Patient struggling against restraint increases blood loss ◆ Failure to continue to re-assess for life threats like tension pneumo

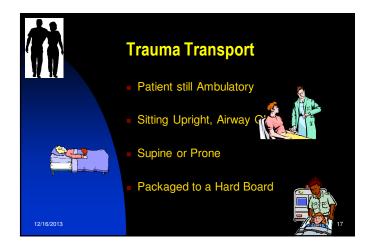
Teaching – Immobilizing in Penetrating Torso Trauma

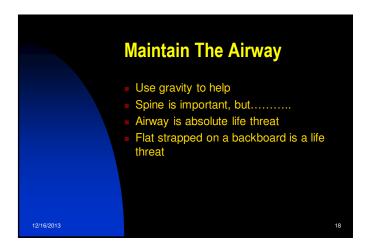
- Use of long backboard in penetrating trauma to torso restricted to:
- Patient with obvious spinal column

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and then fell a distant	ice)	14		
Lumbar Cuinal I	M-4:			
Lumbar Spinal I Restriction	MOTION	-		
Mechanism of low b		-		
lower extremity traus	na	_		
OptionsLong backboard −	solid or flexible			
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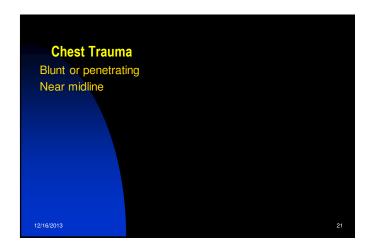


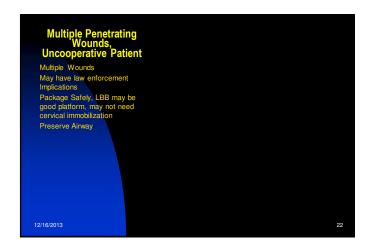


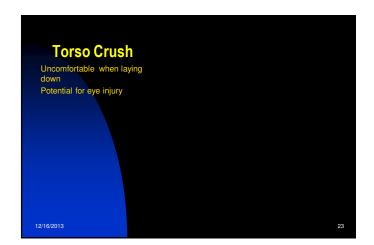
PATIENT POSITIONING 6

Airway Management Options Elevate Roll to have "sunny side up" Flip upside down Have patient guide you Spinal Motion Restriction as possible

Pediatric Packaging for saftransport is critica Use safety seats Collars difficult to Very uncooperative on LBB	fit	
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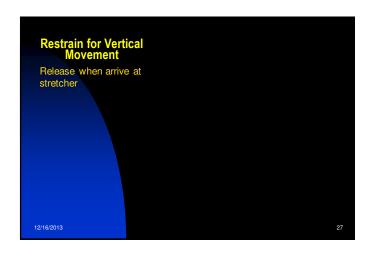






Positioning Other Systems Intentionally elevate (an extremity) Make dependent (a gravid uterus) Don't make problem worse (an injured eye) Listen to the patient

Pregnant Trauma	
Selective	
Immobilization of Spine	
Cannot safely lie	
supine	
Airway is in danger	
12/16/2013	26



Selective Spinal Motion Restriction Based on Mechanism, Complaints, and Exam Findings LBB- Fixed or Flexible Short backboard − solid or flexible Cervical One Piece Collar Two Piece Collar Tall Collar − "X Collar"

Documenting: Packaging Based on History and Mechanism Packaging for Security or Safety Medical Packaging Based on Medical Need Security Packaging – Restraint to Protect the Crew and the Patient Law Enforcement Packaging Any complaints or findings that changed?

Documenting: Selective Spinal Motion Restriction Based on Mechanism Patient Complaints Physical Exam Findings Use of transfer tools Patient comfort during and after use of SMR Any complaints or findings that changed?

PATIENT POSITIONING 10

In the Emergency Department: Spinal Motion Restriction				
	 Based on History from EMS Any complaints or findings that changed? Literature-based rules for Continuing Immobilization, and then Imaging the Spine NEXUS Canadian C-spine Rule 			
12/16/2013		31		

	Position the Patient	
	 Do No Harm Protect Spine and Airway and other Critical Functions LBB as a Movement Tool Safety for the Patient Selective Spinal Immobilization 	
12/16/2013		32

PATIENT POSITIONING

11