Scenario: Scenario: T6 – The Bleeding Patient!	**Patient: Nicole Kidman 24 years old.**	**Simulator: SIMMAN Essentials**
Case Summary: Nicole was grooming her horse when she received a kick in the chest from the horse's back leg. She is in a large amount of pain and her friend drove her to hospital to "get checked out". En-route to the ED she has become short of breath and lightheaded. She is triaged as a category 2 patient and is awaiting assessment in resus. She has a right haemothorax and a laceration to her liver. She becomes haemodynamically unstable and needs definitive care. As her blood pressure decreases she will become confused and then unresponsive.		**Participant Briefing:** Nicole Kidman: 24 year old woman, kicked by her horse in the chest. She is now short of breath and in the resuscitation bay.
Clinical Issues		**Human factors / Non technical issues**
Approach to the bleeding trauma patient – DRS AcBCDE Appropriate initiation of management Recognition of potential sites of bleeding and investigating these – "Floor and 4 more" – Clinical/FAST/CXR/Blood tests and X-match Management of blunt chest and abdominal trauma – chest drains/thoracostomies/IV fluids and blood +/- analgesia		Role allocation Situational awareness – deteriorating patient Mini summaries of progress/plan/deterioration Gathering of appropriate resources – FAST/Blood/Surgical or Trauma team advice – consultant led Communication with team/patient/friend Active followership
Learning Objectives: Importance of a structured approach to the trauma/bleeding patient. Knowledge of investigations used in potentially bleeding patients. Management of blunt chest and abdominal traumas **Communicate**: With team, with patient and with other specialities **Conduct**: structured primary survey with management and investigations at the same time **Demonstrate**: Good team leadership/followership/communication/situational awareness **Interpret**: Clinical signs and symptoms of blood loss. Investigations associated with the bleeding patient.		

This project was possible due to funding made available by Health Workforce Australia
HealthWorkforce AUSTRALIA An Australian Government Initiative
Sydney Clinical Skills and Simulation Centre

Faculty Actors:
ED staff nurse – will assist the team with their assessment, management and investigation of the patient. Will prompt team if required to attain goals of scenario.
Surgical/Trauma team registrar or senior registrar or consultant – depending upon the experience of the team. If the team is experienced then the surgical team member should be increasingly junior and visa versa.
Person to answer the telephone – consultant surgeon, blood bank, radiology, etc (SCSSC faculty)

Patient Moulage:
Bruising to the epigastrium – slightly to the right side and on the lower anterior ribs. Area about 10cm diameter circular mark.

Equipment & Props:
EdWISE Trauma box and extras
"Make-up" for the bruising around epigastrium
Equipment for chest drain insertion x2 (the patient may need bilateral thoracostomies/chest drains
Underwater seal drains x2
Blood – O negative 4 units (made up prior to the scenario and given to the team when asked for)
FFP – O negative 4 units (made up prior to the scenario and given to the team when asked for)
Laminated ECG showing sinus tachycardia
Laminated ABG results x3
Laminated Full Blood Count result
Laminated CXR showing right sided haemothorax (1)
Laminated CXR showing chest drain in right thorax with residual blood +/- air (2)
Laminated CXR showing an intubated patient with right haemothorax (3)
Laminated CXR showing an intubated patient with a right chest drain (4)
Need 2 laminated copies of each CXR
Laminated FAST scan images (2 of each image) blood around the liver and in the right hemi-thorax.

This project was possible due to funding made available by Health Workforce Australia
HealthWorkforce AUSTRALIA An Australian Government Initiative
Sydney Clinical Skills and Simulation Centre

Monitor: ED Setting HR, BP and Sats	**Investigations:** Laminated ABG results x3 – on arrival, pre intubation (10 minutes in), post intubation (towards end of scenario) Laminated 12 lead ECG - sinus tachycardia Laminated FBC result – low Hb and Hct Laminated CXRs showing right haemothorax (also computer image to show on the VC screen) Laminated FAST scans images showing blood in right thorax and around liver.	**Faculty notes re supporting images/investigations** Blood gasses and CXRs are numbered to help the faculty nurse to give the correct result at the correct time. See below faculty notes for when to give ABGs. The team does not have to receive all the ABGs but should receive the appropriate ABG for when the test was taken (pre or post blood, pre or post intubation). When the CXRs are given will depend on what the team do! CXR 1 – pre chest drain and pre intubation CXR 2 – Post chest drain but pre intubation CXR 3 – Post intubation but pre chest drain CXR 4 – post intubation and post chest drain.
Patient presentation	**Expected response by participants**	**Faculty /Actors Notes**
Initial Presentation: Sats – 95% on Hudson mask RR – 28/min Decreased air entry right base NIBP – 87/40 HR – 110 reg Temp – 36.3 Deterioration over 7 minutes to next set of observations	• PPE • AcBCDE approach to the patient/primary survey • Assign roles to team, team leader to step-up ?allocation of scribe? • Be aware of likely massive blood loss • Activate massive transfusion protocol/order appropriate blood and products • Gain second IV access and send off blood tests • Team may decide to place C-spine collar • AMPLE history	**Faculty nurse:** If needed you are to comment that Nicole looks pale. You may also need to prompt the team into an AcBCDE approach to the patient. Please hand the team the appropriate investigation when they have ordered it or sent the bloods away. Support the team to gather equipment. **Nicole:** is able to answer questions although she is not able to complete long sentences.

This project was possible due to funding made available by Health Workforce Australia
HealthWorkforce AUSTRALIA An Australian Government Initiative
Sydney Clinical Skills and Simulation Centre

Progression: Sats – 98% RR – 35/min Decreased air entry throughout right chest NIBP/art – 80/35 HR – 120/min Eyes close towards the end of this section (11 minutes into scenario) PEARL If blood and products are given then the BP will rise to 95/40 for a period of 2 minutes and then deteriorate to 70/30 over the next 7 minutes of this section of the scenario.	• Recognise deterioration • Reassess AcBCDE • 12 lead – ECG • Trauma series X-rays (may not take pelvis or neck?) • FAST scan • Chase blood results • Transfuse blood and give IV fluids • Call for specialist help/surgical or trauma team consultant or fellow • Communication deterioration with team and summon appropriate help • Insertion of chest drain right chest. • Organise the checking and administration of blood and products.	**Nicole:** is no longer able to answer questions. She grunts in response to pain at the beginning of this section and then is unresponsive towards the end of this section. **Faculty nurse:** to give the team the 12 lead ECG once the ECG stickers are in place. If an ABG is taken then the first ABG result can be handed to the team. If investigations are not ordered then Faculty nurse should prompt the team into ordering them. Once imaging done – hand the team the appropriate laminated X-rays When the FAST scan has been performed hand the laminated sheets to the team. **Surgical Registrar:** to arrive during this time. If the team is experienced then a junior surgeon arrives from theatre. They are reluctant to call their consultant and would prefer a CT scan prior to calling the boss or proceeding to theatre. If a junior team then surgical registrar can prompt towards correct course of action.
Deterioration: Sats – 90% no matter what Oxygen therapy is given RR – 40/min Slight AE to right chest post drain insertion. NIBP/art – 68/30 HR – 135/min	• Recognise further deterioration and need for surgical intervention • Reassess Nicole in a DRS AcBCDE fashion • Communicate this with the team and appropriate specialities • Organise for Nicole to be transferred to theatre • Team may decide to intubate Nicole prior to transfer – depending on skill mix • Ready transfer monitoring and blood/fluid/drugs/equipment/personne	**Nicole:** is now unresponsive but has a pulse. **Faculty nurse**: should feel for a pulse and confirm that there is one if the team cannot palpate a pulse. **Nicole does not arrest!** If the team does not pick up on deterioration then faculty surgeon or nurse should prompt the team by trying to rouse Nicole. If this doesn't work then "She's gone quiet!" usually does! Faculty to assist in organising for transfer to theatre. **Faculty surgeon:** can suggest calling the anaesthetist and theatres if the team do not suggest this. May well need Cardio Thoracic surgeon if there is one available at host site. If team do not suggest emergency drugs/blood/equipment/ personnel

This project was possible due to funding made available by Health Workforce Australia
HealthWorkforce AUSTRALIA An Australian Government Initiative
Sydney Clinical Skills and Simulation Centre

	l for transfer • Think about communication Nicole's situation with friend or family.	for transfer then one of the faculty should. Prompt the team to contact family/friend Nicole's vitals remain much the same. If intubated without any vasopressor support then BP decreases to 60/25 for a couple of minutes. If ABG asked for then third ABG can be given to the team
Recovery: Scenario ends with organisation of Nicole for transfer (or when time limit reached – which ever is first).		

Debrief Guide	
Clinical Debrief (Address 2 points maximum * = suggested) AcBCDE assessment and management approach * Reassessment with every intervention and change in patient Detection of blood loss * Interpretation of imaging and blood results FAST/CXR/ABGs Massive transfusion protocol/ ordering blood products in face of continued and large blood loss Choice of imaging, investigations or management *	**Non-Technical team tasks Debrief (Address 2 points maximum – these will depend upon the team)** Role allocation Situational awareness Communication with team – deterioration/decisions/theatre Leadership and followership Mobilising resources/help Decision making – chest drain/CT/OT Handling surgical registrar – inexperienced and asking for more senior input/experienced and? handover of team leadership?

This project was possible due to funding made available by Health Workforce Australia
HealthWorkforce AUSTRALIA An Australian Government Initiative
Sydney Clinical Skills and Simulation Centre

Initial State
Breathless, pale, pain.
Lost about 2-3L of blood
Sats 95% on Hudson
RR 28/min
Decreased AE R base
BP 87/40
HR 110 reg

→

Progress
Deterioration
Lost about 3-3.5L
Sats 98% on NRB
RR 35/min
No air entry right chest unless drain in place
BP 80/35
HR 120 reg
Eyes close towards end of section

→

Deterioration
Blood loss compromising perfusion to brain – drop in GCS
Sats – 90%
RR – 40
BP – 68/30
HR – 135/min
Eves closed

↓

Recovery
No recovery
Needs transfer to theatre

This project was possible due to funding made available by Health Workforce Australia
HealthWorkforce AUSTRALIA An Australian Government Initiative
Sydney Clinical Skills and Simulation Centre

ABG 1

pH	7.29	(7.35-7.45)
pO_2	83	(80-100 mmHg)
pCO_2	38	(35-45 mmHg)
HCO_3	18	(20-24 $mmoll^{-1}$)
BE	- 4	(-2 to +2)
Lac	2.5	(0-2)
Hb	110	
Na^+	133	
K^+	4.4	

This project was possible due to funding made available by Health Workforce Australia
HealthWorkforce AUSTRALIA An Australian Government Initiative
Sydney Clinical Skills and Simulation Centre

ABG 2

pH	**7.15**	**(7.35-7.45)**
pO_2	**90**	**(80-100 mmHg)**
pCO_2	**45**	**(35-45 mmHg)**
HCO_3	**15**	**(20-24 $mmoll^{-1}$)**
BE	**-6**	**(-2 to +2)**
Lac	**4.1**	**(0-2)**
Hb	**75**	
Na^+	**140**	
K^+	**5.0**	

This project was possible due to funding made available by Health Workforce Australia
HealthWorkforce AUSTRALIA An Australian Government Initiative
Sydney Clinical Skills and Simulation Centre

ABG 3

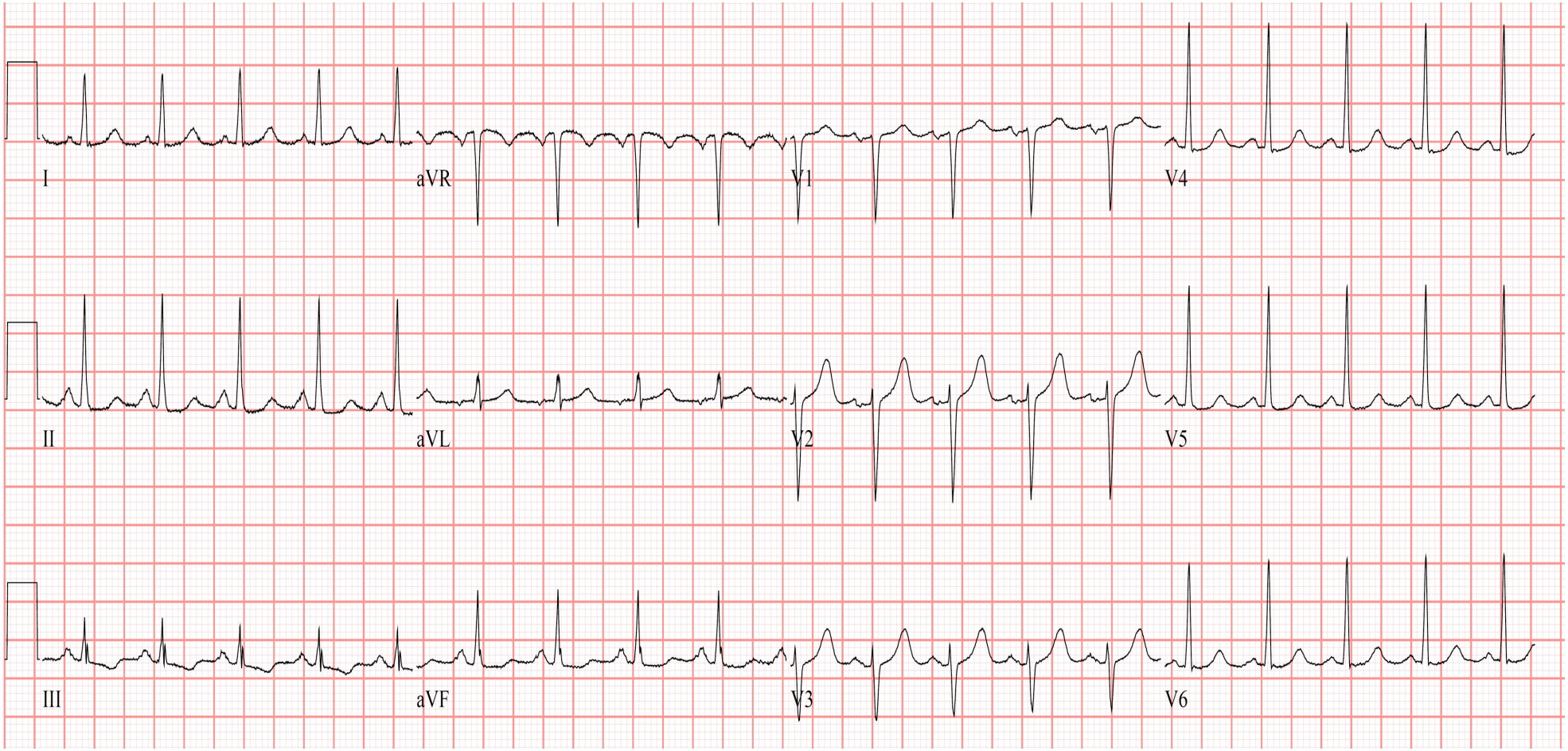
pH	**7.10**	**(7.35-7.45)**
pO_2	**71**	**(80-100 mmHg)**
pCO_2	**58**	**(35-45 mmHg)**
HCO_3	**13**	**(20-24 $mmoll^{-1}$)**
BE	**-7.9**	**(-2 to +2)**
Lac	**4.9**	**(0-2)**
Hb	**71**	
Na^+	**145**	
K^+	**5.3**	

This project was possible due to funding made available by Health Workforce Australia
HealthWorkforce AUSTRALIA An Australian Government Initiative
Sydney Clinical Skills and Simulation Centre

Full Blood Count

Hb	**84 g/L**	**(120-150)**
RCC	**2.9 x10^{12}/L**	**(3.8-4.8)**
MCV	**80 fL**	**(83-101)**
MCH	**27 pg**	**(27-32)**
WCC	**12.3 x10^{9}/L**	**(4.0-10.0)**
Plt	**327 x10^{9}/L**	**(150-400)**

This project was possible due to funding made available by Health Workforce Australia
HealthWorkforce AUSTRALIA An Australian Government Initiative
Sydney Clinical Skills and Simulation Centre



ECG used with permission from ECGpedia.org

This project was possible due to funding made available by Health Workforce Australia
HealthWorkforce AUSTRALIA
An Australian Government Initiative
Sydney Clinical Skills and Simulation Centre

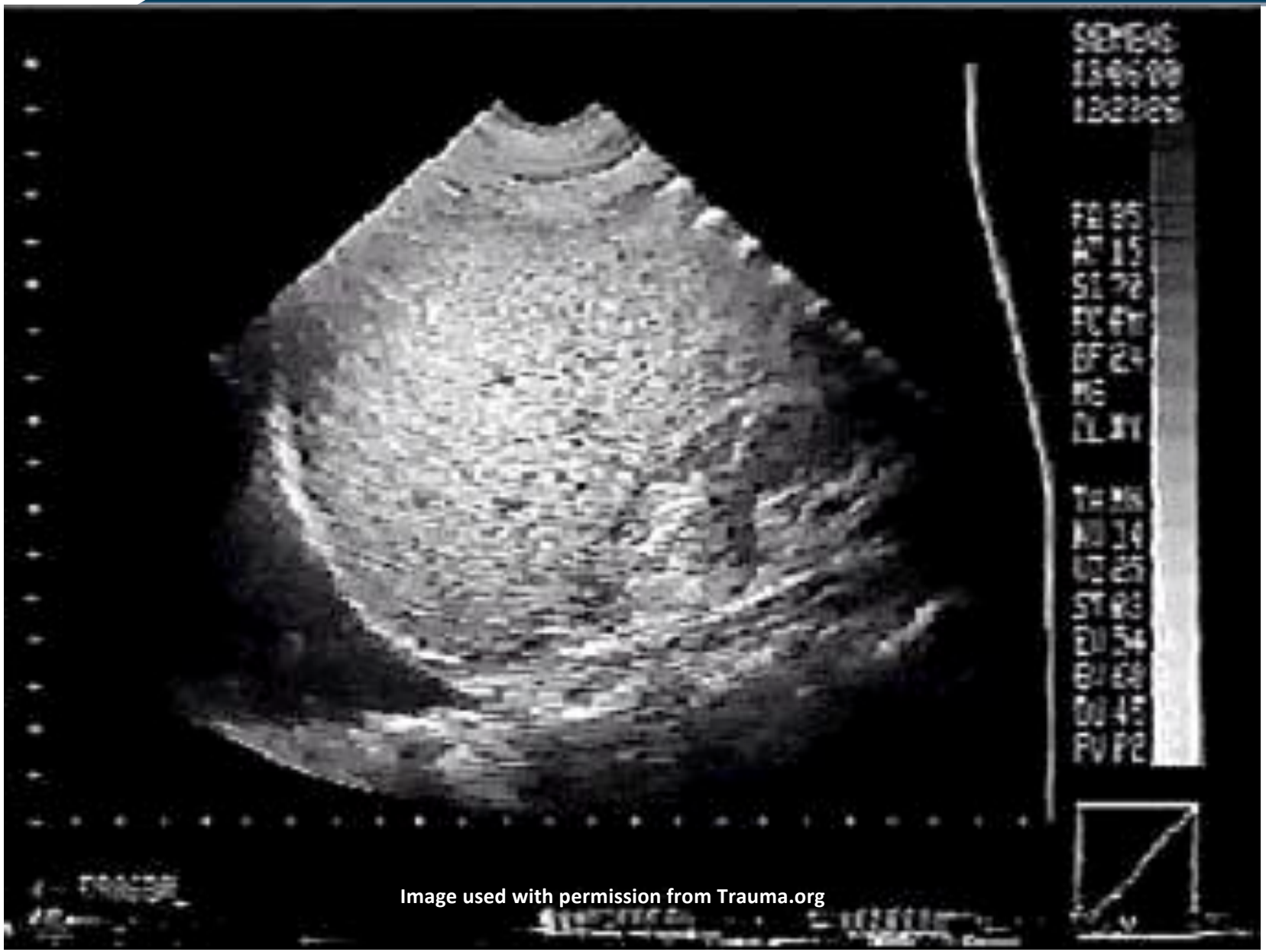


Image used with permission from Trauma.org

This project was possible due to funding made available by Health Workforce Australia

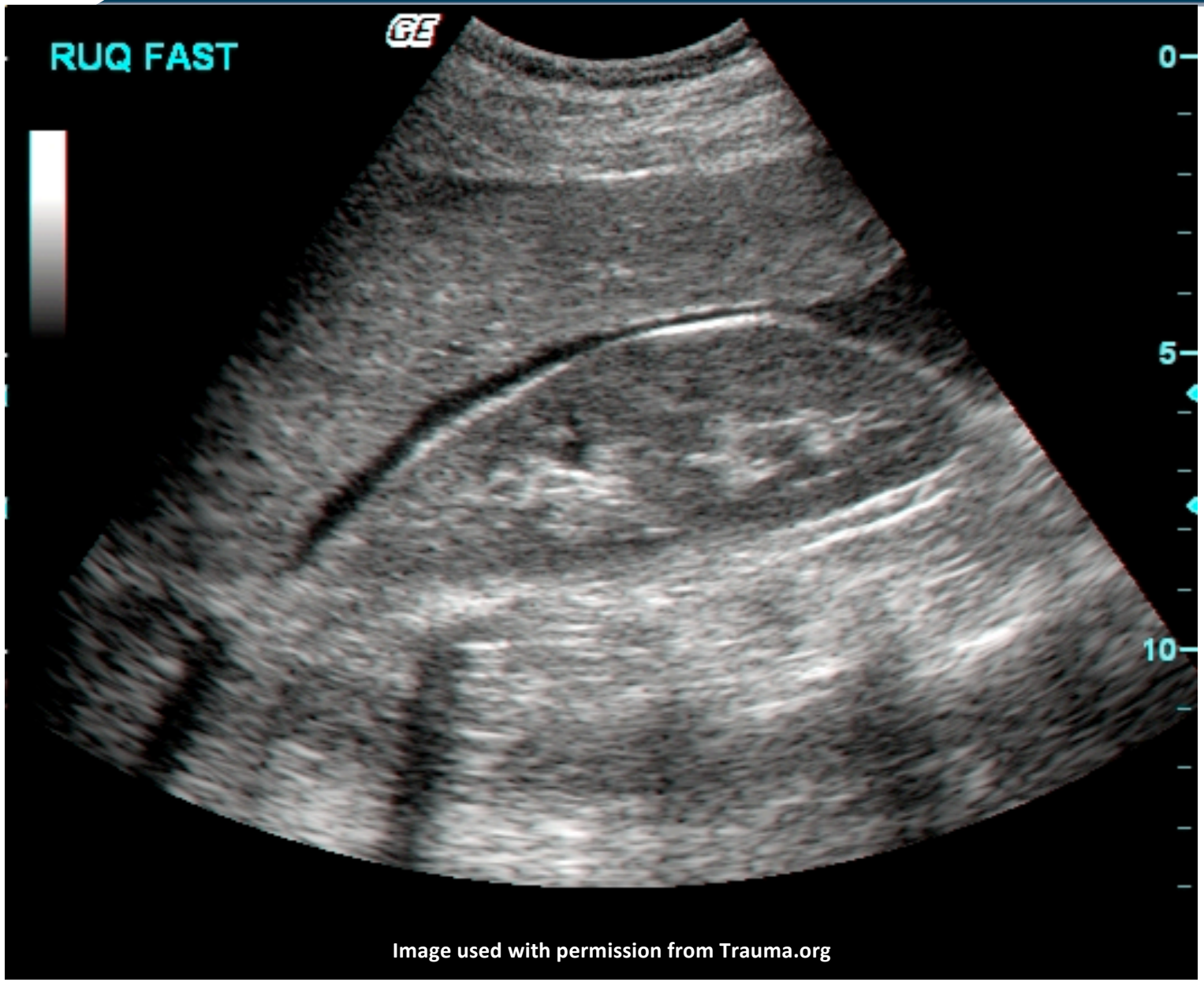


Image used with permission from Trauma.org

This project was possible due to funding made available by Health Workforce Australia
HealthWorkforce AUSTRALIA
An Australian Government Initiative
Sydney Clinical Skills and Simulation Centre

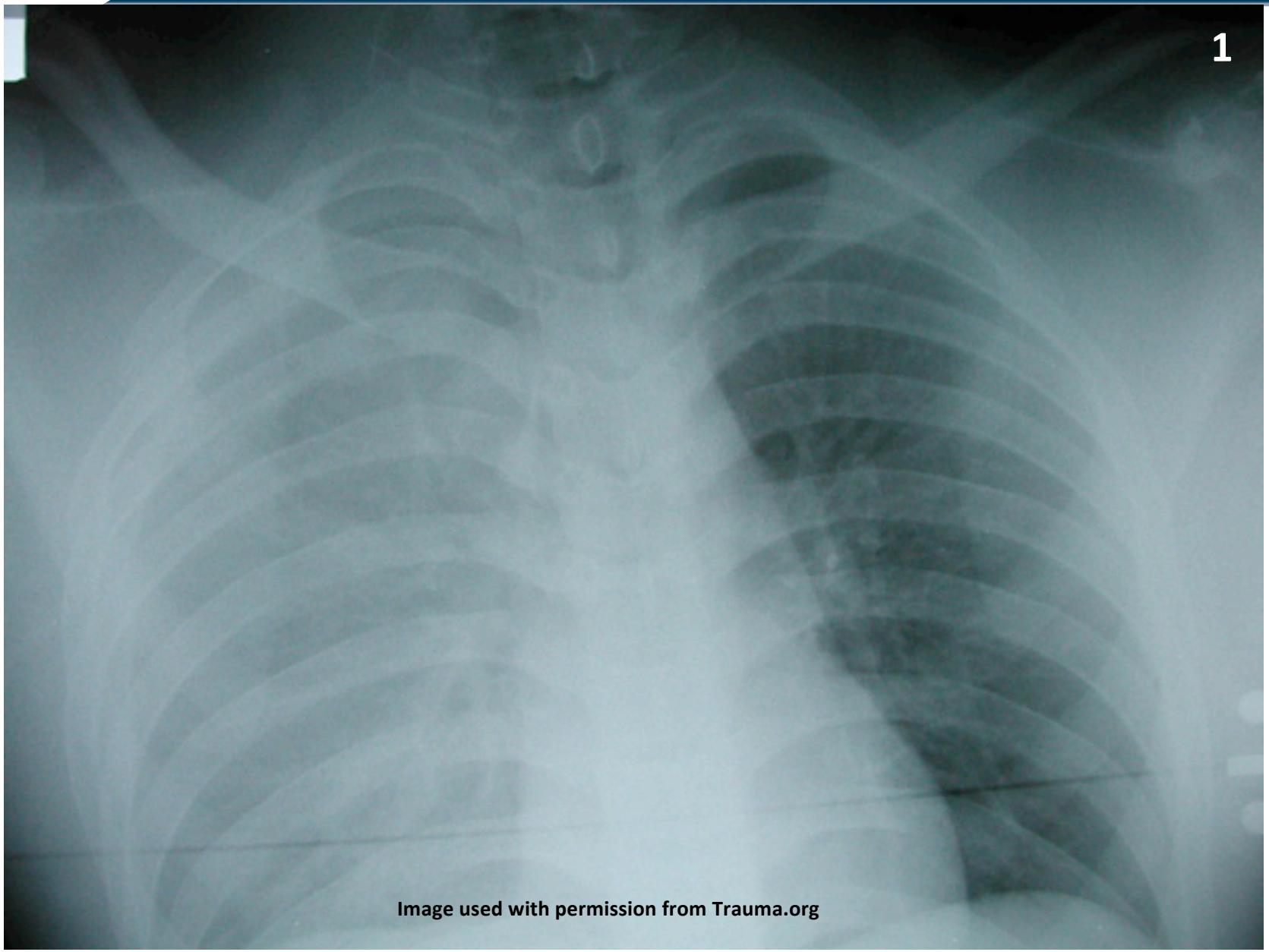


Image used with permission from Trauma.org

This project was possible due to funding made available by Health Workforce Australia

HealthWorkforce AUSTRALIA An Australian Government Initiative

Sydney Clinical Skills and Simulation Centre

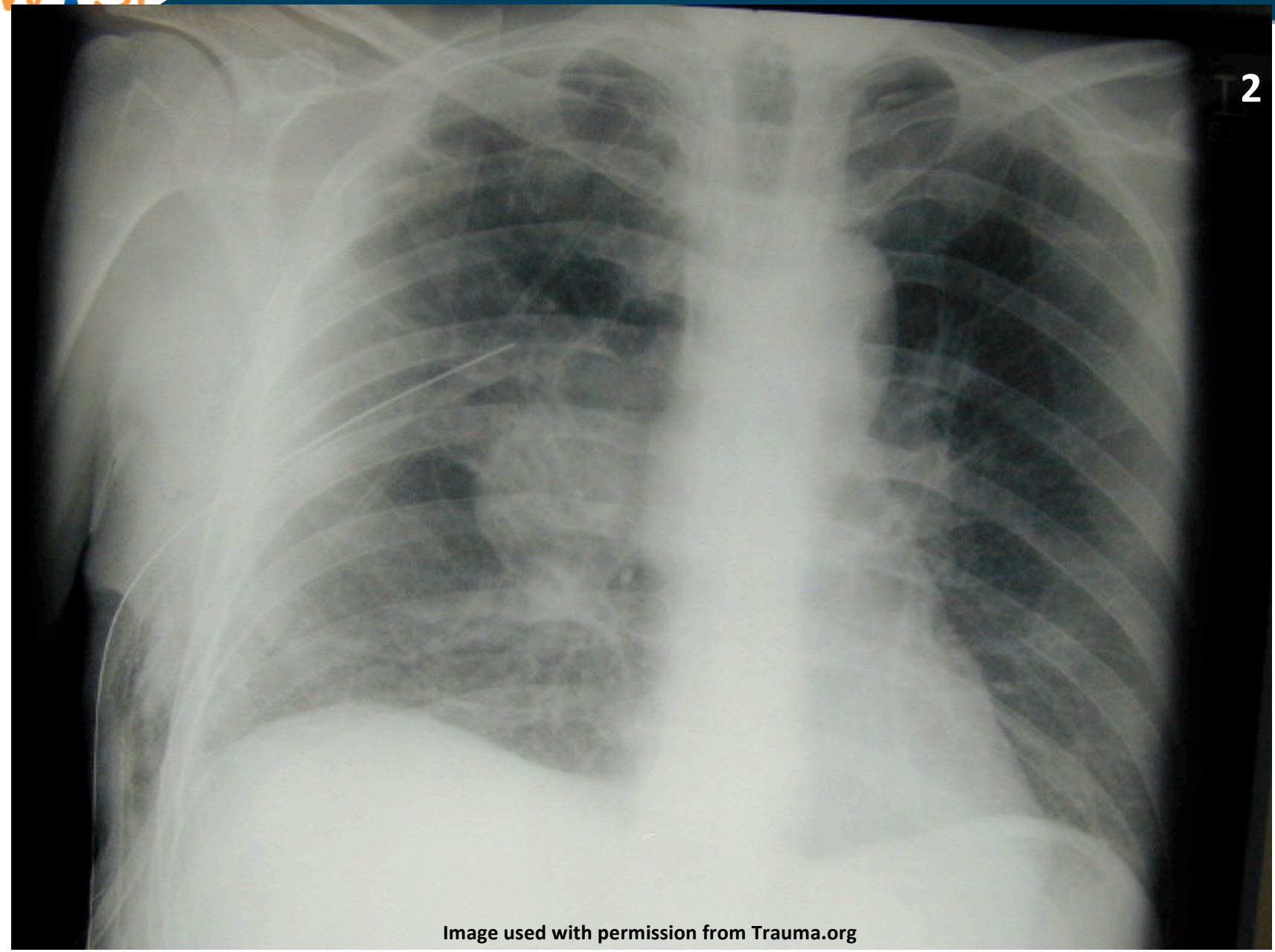


Image used with permission from Trauma.org

This project was possible due to funding made available by Health Workforce Australia

HealthWorkforce AUSTRALIA An Australian Government Initiative

Sydney Clinical Skills and Simulation Centre

Image used with permission from ITIM

This project was possible due to funding made available by Health Workforce Australia