Art and Practice of Medicine
Objective Structured Clinical Examination (OSCE)

Emergency Medicine
Primary/Secondary Surveys for the Trauma Patient (Virtual OSCE)

Developed for OUWB by
Joseph Vercellone, M.D.

Emergency Medicine
Primary/Secondary Surveys for the Trauma Patient

Overview

Abstract

Successful evaluation of critically ill patients within an Emergency Room requires speed, efficiency, and an examination methodology that ensures the proper diagnosis of life-threatening conditions. Primary and secondary surveys of trauma patients provide a structured and logical approach to assessing patient status and determining the next steps in patient care. Medical students are taught the process flow of trauma surveys during their emergency medicine clerkship to better prepare them for treating trauma patients during residency.

This EM Virtual OSCE measures a student's ability to prepare for, observe, evaluate, and communicate a trauma using primary and secondary surveys. The OSCE measures a student's understanding of:

- Required elements of a primary and secondary survey;
- Lab work, imaging, and interventions that may be required during primary/secondary surveys depending on findings;
- Differential diagnoses suggested of findings; and
- Effective clinical communication

Delivered as a multimedia experience leveraging print, video and clinical images, the student observes the execution of primary and secondary surveys from the vantage point of an attending physician. The student is tasked with evaluating the performance of the physicians depicted in the video and documenting the errors and omissions that occurred.

This virtual OSCE is designed as a stand-alone tool that can be taken within Oakland University William Beaumont's (OUWB) Clinical Skills Center (CSC) or at any computer with Internet access to the CSC's CAE LearningSpace. The module could also be recreated in an alternate online learning environment, or run as a live simulation, by leveraging the included scripts, images and evaluation criteria.

Target Audience(s)

This OSCE is intended as a teaching tool for medical students who have been in, or are currently in, an Emergency Medicine Clerkship or Sub-Internship.

Emergency Medicine
Primary/Secondary Surveys for the Trauma Patient

Educational Objectives

In order measure student competence and confidence in evaluating a trauma patient within an emergency room setting, the educator, by the end of the Virtual OSCE, will be able to:

- Assess the student's knowledge of the required elements of a primary and secondary survey;
- Assess the student's understanding of lab work, imaging, and interventions that may be required during a primary and/or secondary survey depending on patient presentation and status;
- Assess the student's ability to interpret diagnostic imaging often required during the evaluation of a trauma patient within an ER setting;
- Assess the student's communication skills during transfer of care.

Introduction and Development Process

The design and development of this Virtual OSCE grew from an exploration of how to effectively measure a student's clinical knowledge of procedural clinical skills separate from their ability to perform those skills under the pressure of a traditional OSCE. Sometimes a student's performance anxiety during a live, monitored OSCE may prevent them from successfully executing the skills being measured. In evaluating those situations, how can an educator best determine if the student's failure to execute those skills arises from a deficiency of procedural knowledge or from an ability to act on their knowledge under emotional pressure?

By changing the role of the student from active participant to an observer/evaluator, we believe we can better assess the student's knowledge of the content and process flow of a procedural skill. We can subsequently build on this confirmed knowledge by further measuring capabilities through traditional, hands-on OSCE scenarios.

Video OSCEs also provide the educator the opportunity to present the student with scenarios that may be difficult to represent with standardized patients. The difficulties may arise from impracticalities in simulating certain desired conditions or in the challenge of an educator providing a consistent, simulated experience to all students participating in the OSCE. The Centre of Medical Education at Queen's University Belfast in Northern Ireland explored using video OSCEs to present neurological conditions (e.g. gait disturbances, dysarthria, etc.). They found that it was "challenging [in traditional OSCEs] to arrange this number of patients and to ensure that the station is reasonably standardized with patients who have the same condition with similar findings, and who are willing and able to be examined repeatedly."[1]

Emergency Medicine
Primary/Secondary Surveys for the Trauma Patient

Our virtual OSCE curriculum focuses on evaluating a student's knowledge of the primary and secondary surveys of a trauma patient within an ER setting. During an incoming trauma, the attending trauma physician often is stationed at the foot of the trauma bay bed while the trauma team evaluates the patient. The trauma team communicates the patient's HPI, vital signs, and survey findings for the attending physician to consider and act upon. By having the student assume the role of the attending physician, it was apparent that this scenario could be presented in a video OSCE format and be used to measure the student's ability to observe the actions of the trauma team, evaluate the team's execution of expected surveys and interventions, and develop a differential diagnoses and action plan.

This OSCE is intended as a teaching tool for medical students who have been in, or are currently in, an Emergency Medicine Clerkship or Sub-Internship. It is expected that the students have received prior training on evaluating trauma patients using primary and secondary surveys. It is also assumed that the student has been trained to evaluate chest x-rays, head CTs, and ultrasound images from FAST exams.

This virtual OSCE was developed with the involvement of Beaumont Hospital – Royal Oak's Emergency Medicine Department and the faculty of the OUWB Clinical Skills Training and Simulation Center. The involvement of both clinical and academic faculty ensured that the curriculum provided by this module advances the student's knowledge of and proficiency in skills that will be required as an emergency physician.

Case Summary and Methodology

This curriculum module consists of print, video and data-entry elements. The curriculum was designed for delivery and assessment within the CAE LearningSpace of OUWB's Clinical Skills Center. We have packaged all of the material required to execute this Virtual OSCE, though, with the understanding that it could be recreated within any online learning environment or executed as a traditional OSCE, with standardized patients, using the provided scripts and materials.

Emergency Medicine
Primary/Secondary Surveys for the Trauma Patient

It is expected that the student experiences the following process flow:

1. **EMS Call/HPI**
   Student **READS** a printed transcript from EMS providing an HPI for a young male involved in a head-on MVC. The transcript provides basic info the student needs to determine possible interventions required during primary and secondary surveys.

   Skills measured:
   a. Analytical Skills
      i. Understand of concise communication of patient's medical status
      ii. Determination of a differential diagnosis and associated interventions

2. **Primary/Secondary Surveys**
   Student **WATCHES** a pre-recorded video of a primary and secondary survey from the perspective of an attending physician. 1-2 resident physicians and a nurse attend to a trauma patient. The resident(s) verbally report the steps of the primary/secondary surveys and well as any positive findings they encounter.

   Certain aspects of the primary and secondary surveys have accompanying, close-up images, which the student can view for better evaluation of patient status, possible diagnoses, and required interventions.

   A number of required steps, findings, and interventions are overlooked during both surveys. The student evaluates the surveys, keeping track of elements that were incorrect or missing.

   Skills measured:
   a. Observational Skills
      i. Observation of a team as they carry out primary/secondary surveys
      ii. Evaluation of actors carrying out simultaneous exams/ interventions
      iii. Recognition of examination findings based on video or image evidence (e.g. facial laceration, seat belt sign, Grey Turner's sign)
   b. Clinical Knowledge
      i. Understanding the steps required for primary and secondary surveys
      ii. Understanding interventions required based on survey findings
      iii. Recognition of omissions in examination and necessary interventions
   c. Analytical Skills
      i. Development of a differential diagnosis based on surveys
      ii. Recognition of the tests, imaging, and interventions required in an appropriate action plan.

3. **Assessment/Plan**
   Student **TYPES** responses to prompts within LearningSpace to document their evaluation of the primary/secondary surveys, their assessment and plan for the trauma patient, and their analysis of provided lab tests and imaging.

   Evaluation includes:
   - The steps of a primary survey
   - The steps of a secondary survey
   - Omissions and errors observed during video surveys
   - Evaluation of FAST, CXR, and CT
   - Differential diagnosis
   - Action plan including additional labs, images or interventions

   Skills measured:
   a. Clinical Knowledge
      i. Understanding the steps required for a primary and secondary survey
      ii. Understanding interventions required based on survey findings
      iii. Recognition of omissions in examination and necessary interventions
   b. Analytical Skills
      i. Evaluation of a FAST exam showing fluid collection around spleen
      ii. Evaluation of a CXR showing a tension pneumothorax
      iii. Evaluation of a Head CT showing intraparenchymal hemorrhage
      iv. Documentation of a differential diagnosis based on surveys
      v. Documentation of the tests, imaging, and interventions required in an appropriate action plan.

4. **Communication**
   Student **TYPES** a brief communication to an attending documenting the patient's HPI, exam findings, differential, and proposed action plan.

   Skills measured:
   a. Organizational Skills
      i. Compilation of information from EMS, surveys, labs, and imaging into a clear, concise, cohesive statement
   b. Communication Skills
      i. Communication of patient status in a thorough, professional manner

Required Materials

This packaged curriculum module provides the educator with a(n):

- **Student Instruction Sheet,** which provides the student with a clear and thorough overview of the OSCE structure and requirements;
- **EMS Transcript,** which should be provided to the student as either hard copy or online text prior to watching the video of the primary and secondary surveys;
- **Primary/Secondary Survey Trauma Video**, in MP4 format, which simulates the examination of the trauma patient within an emergency room environment with key errors and omissions for the student to evaluate;
- **Primary/Secondary Survey Trauma Video Assessment**, in MP4 format, which replays the simulated examination of the trauma patient and highlights the errors and omissions that should have been documented by the student (can be viewed immediately following the OSCE or presented at a subsequent review session provided by the educator);
- **Primary/Secondary Survey Demonstration Video**, in MP4 format, which simulates the correct and proper examination of a trauma patient within an emergency room environment (can be used to train students in advance of the Virtual OSCE or as a review following the delivery of the Virtual OSCE);
- **Primary/Secondary Survey Script,** which enables faculty to deliver this OSCE in real-time using actors and a simulated patient;
- **Supporting images**, in print and JPG formats, which give the student closer views of secondary exam findings and the results of x-ray, ultrasound, and CT imaging;
- **Assessment and Plan Evaluation Scorecard,** which outlines the questions that are asked of the student after viewing the video simulation and the scoring rubric for each of the questions;
- **Post-OSCE Reference Guide,** which provides an overview and explanation of primary and secondary surveys the student may use as a reference tool.

References

1. Watson PP. Neurology assessment by objective structured video examination (OSVE). The Clinical Teacher. 2015.
2. American College of Surgeons. ATLS Student Course Manual. Chicago, IL: American College of Surgeons; 2008.
3. Eastern Association for the Surgery of Trauma. EAST Practice Management Guidelines. Eastern Association for the Surgery of Trauma Website. https://www.east.org/education/practice-management-guidelines.

Authors/Acknowledgements

Emergency Medicine Primary/Secondary Surveys for the Trauma Patient (Virtual OSCE) was made possible through the support and resources provided by the Beaumont Hospital – Royal Oak Emergency Medicine Department and the faculty of the OUWB Clinical Skills Training and Simulation Center.

We wish to acknowledge the input and guidance of:

- Dr. Nelia Afonso MD, Director - Art and Practice of Medicine, OUWB
- Maurice Kavanaugh, Director, Clinical Skills Training and Simulation Center, OUWB
- Dr. Amy Smark MD, Director of Undergraduate Medical Education, Emergency Medicine, Beaumont Hospital – Royal Oak
- Dr. Shanna Jones MD
- Dr. Dawn Jung MD
- Victoria Mason
- Amanda Stahl
- Woodrow Samms

Appendices

Emergency Medicine
Primary/Secondary Surveys for the Trauma Patient

Student Instruction Sheet

This Virtual OSCE will consist of multiple, timed sections with mixed-media presentations and visual references. You are provided a blank sheet of paper and a clipboard in order to take notes during the OSCE. You can refer to your notes when completing the data entry screens in the final sections.

Scenario

Mr John Doe is an 80-year-old male arriving in the Emergency Center (EC) following a head-on motor vehicle collision (MVC). You are the attending within the EC and are tasked with observing a primary and secondary survey being performed by your team.

Instructions

- **Section One – EMS Transcript** (1 minute)
  - Read the transcript of the EMS bringing Mr. Doe to the EC. The transcript will provide you with basic information regarding the patient, the MVC, and the patient's vital signs and status.

- **Section Two – Primary/Secondary Surveys** (~5 minutes)
  - From the EC attending physician's vantage point at the foot of the bed, observe the video of your team as they execute primary and secondary surveys of Mr. Doe.
  - As they perform the survey, note any findings from their examination.
  - Additionally, record errors/omissions, if any, you notice during the surveys and examination.

- **Section Three – Assessment and Plan** (10 minutes)
  - At the end of the video, you will be prompted to evaluate the patient you observed in the video and to document any exam findings in Learning Space.
  - On the Learning Space entry screen(s) you may also be asked to interpret associated lab results and imaging.
  - You will then develop a problem list and recommend relevant lab tests, imaging, or interventions that should occur based on findings and diagnoses.

- **Section Four – Communication** (5 minutes)
  - Finally, you will type a brief, 3-5 sentence medical decision making report addressed to the physician to whom you are transferring patient care. It should concisely describe the patient's HPI, exam findings, problem list, and proposed plan of care.

EMS Transcript

EMS Technician:

Beaumont Hospital, this is EMS Unit 1. We have an approximately 80-year-old male restrained driver involved in a head-on collision at a speed of approximately 45 mph. Airbag deployed. He is currently unconscious with facial lacerations. Unknown PMH.

BP is 100/70, HR 120, RR 24, O2 90% on 2L NC. An IV is established and running TKO.

ETA in 1 minute.

[PROCEED TO VIDEO]

Primary/Secondary Survey – Trauma Script

Time Code	Visuals	Dialogue	Props/Equip.	Notes
TITLE 00:00	TITLE SLIDE: Emergency Medicine Virtual OSCE Trauma Bay #1			
PRIMARY 00:05	MEDIUM WIDE: Foot of hospital gurney in an emergency room trauma bay. A patient wearing boxer shorts and draped in a sheet covering his pelvis lies on the gurney. He is moaning and slightly moving in apparent pain. RESIDENT #1 stands at the head of the gurney. RESIDENT #2 stands to the patient's left side. NURSE #1 stands on the patient's right side. Vital signs remain visible on screen throughout video. VITALS SIGN BAR: BP 100/70; HR 120; RR 24; O2 90%/2L RESIDENT #1 leans over patient and begins auscultating patient's chest.	NURSE #1: Patient vitals are up and I am starting two wide-bore IVs ATTENDING (VO): How is his breathing? RESIDENT #1: Patient is tachypnic. Breath sounds are present on right side. Hmmm….I do not hear breath sounds on the left side.	• Trauma bay • Gurney • Sheet • Stethoscopes • IV bag/tubing • IV tree • Cloth tape	

Emergency Medicine
Primary/Secondary Surveys for the Trauma Patient

	RESIDENT #1 percusses the left side of patient's chest. VITALS SIGN BAR: BP 90/60; HR 130; RR 24; O2 90%/2L RRESIDENT #2 looks for JVD and listens for heart sounds. He palpates carotid and femoral pulses. RESIDENT #1 bends down to patient's ear. RESIDENT #2 places his fingers in patient's hand. There is no response from patient except for moaning.	RESIDENT #1 Left side of chest is hyper-resonant. ATTENDING (VO): How is his heart? RESIDENT #2: Patient is tachycardic at 130. JVD present. BP is 90/60 but carotid and femoral pulses are strong. ATTENDING (VO): Is he responsive? RESIDENT #1: Mr. Doe can you open your eyes for me? Mr. Doe? RESIDENT #2: Mr. Doe? Can you squeeze my hand? RESIDENT #1: Patient does not open eyes. Verbal is incomprehensible. He is moving to pain stimulus. GCS of 12. NURSE #1: Patient clothing has been removed and he's ready for secondary survey		Errors/Omissions: • Airway not checked • No cervical collar • Evidence of tension pneumo but no needle aspiration or chest tube insertion • GCS incorrectly stated at 12 instead of 7 • Patient not intubated

Emergency Medicine
Primary/Secondary Surveys for the Trauma Patient

SECONDARY 03:01 – 09:55	RESIDENT #1 begins assessment of head and neck. RESIDENT #1 opens each eyelid and shines a light into the pupils. RESIDENT #1 opens the patient's mouth and shines his penlight to inspect. RESIDENT #1 reaches behind the patient's neck and begins to palpate the cervical spine. The patient moans in pain. RESIDENT #2 begins to examine the patient's chest and abdomen.	ATTENDING (VO): Let's check his head and neck. RESIDENT #1: There is a 10-12cm laceration on the forehead superior to the nose and left eye. There is no apparent debris within the wound. No active bleeding. No other external signs of trauma to the head. ATTENDING (VO): Check his eyes and mouth, please. RESIDENT #1: The right eye is dilated and fixed. Left eye is responsive to light. No trauma to the mouth, no blood presenting in oropharynx. ATTENDING (VO): We better check his cervical spine. RESIDENT #1: Mr. Doe is there any pain when I touch the back of your neck? There is pain on palpation of c spine. ATTENDING (VO): How does the chest and abdomen look?	• Trauma bay • Gurney • Sheet • Stethoscopes • IV bag/tubing • IV tree • Cloth tape	Errors/Omissions: • Did not check ears • Did not place cervical collar • Did not roll patient • Did not check thoracic, lumbar, or sacral spine • Did not check rectal tone

	RESIDENT #2 palpates the patient's abdomen. The patient moan in pain; more so on palpation of the left side than right. RESIDENT #2 palpates and rocks the patient's pelvis. RESIDENT #2 lifts the sheet covering the patient's genitals and examines (hidden behind the sheet) the patient's genitals. RESIDENT #2 examines each extremity for pain by palpating and providing passive movement. The patient does not express a pain response to any of the extremity exam.	<u>RESIDENT #2:</u> Chest and abdomen have bruising in pattern of seat belt. Bruising is also present on left flank. <u>RESIDENT #2:</u> There is diffuse pain to palpation; greater in left quadrants than right. <u>ATTENDING (VO):</u> Better check the pelvis. <u>RESIDENT #2:</u> No pain on palpation of pelvis. No pelvic instability noted. <u>ATTENDING (VO):</u> OK, let do a genital exam. <u>RESIDENT #2:</u> No blood in meatus on genital exam. <u>ATTENDING (VO):</u> Check all of the extremities for trauma, please. <u>RESIDENT #2:</u> Mr. Doe does it hurt if I touch or move your left arm? Left arm has full range of motion and good tone. No apparent pain on passive movement.		

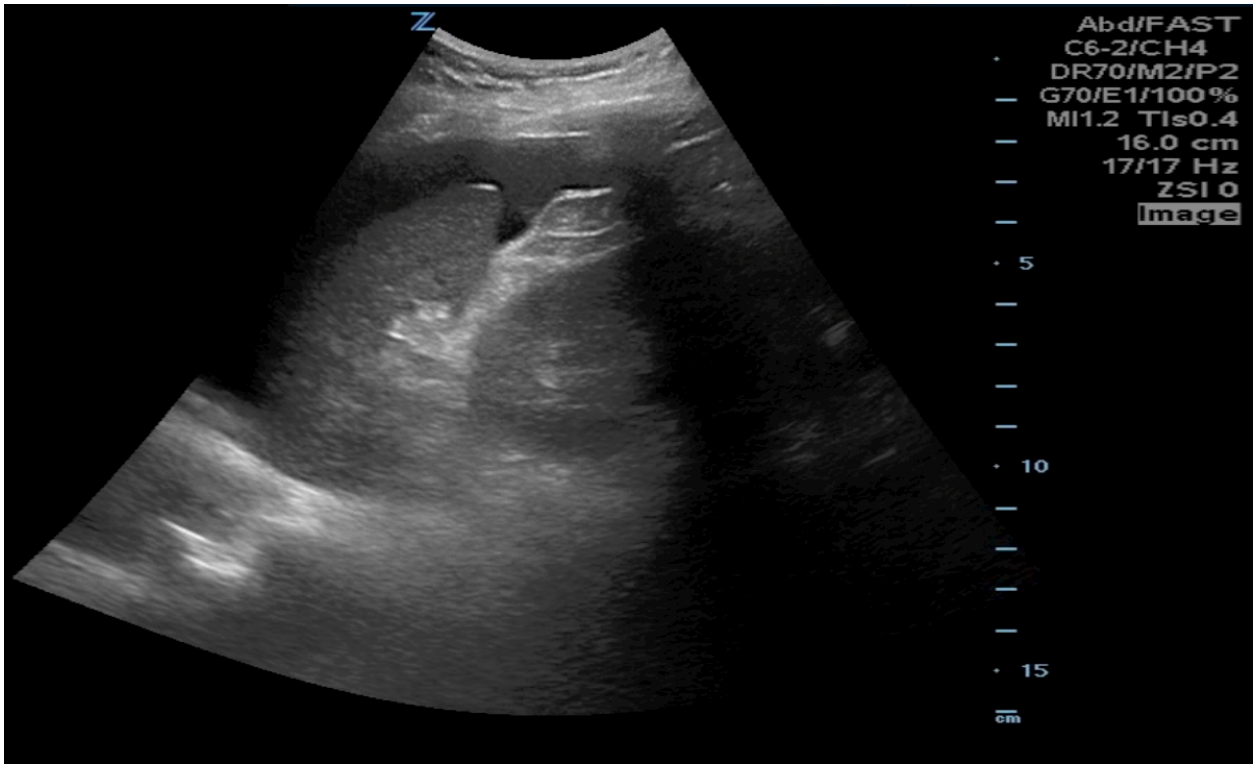
Emergency Medicine
Primary/Secondary Surveys for the Trauma Patient

	The residents and the nurse look up to the camera as if finished with their examination of the patient.	RESIDENT #2: Mr. Doe does it hurt if I touch or move your right arm? Right arm has full range of motion and good tone. No apparent pain on passive movement. Mr. Doe does it hurt if I touch or move your left leg? Left leg has full range of motion and good tone. No apparent pain on passive movement. Mr. Doe does it hurt if I touch or move your right leg? Right leg has full range of motion and good tone. No apparent pain on passive movement. RESIDENT #1: What are your thoughts, Dr.?		
END TITLE 09:55 – 10:00	END-TITLE SLIDE: Please advance to "Assessment and Plan" screens			

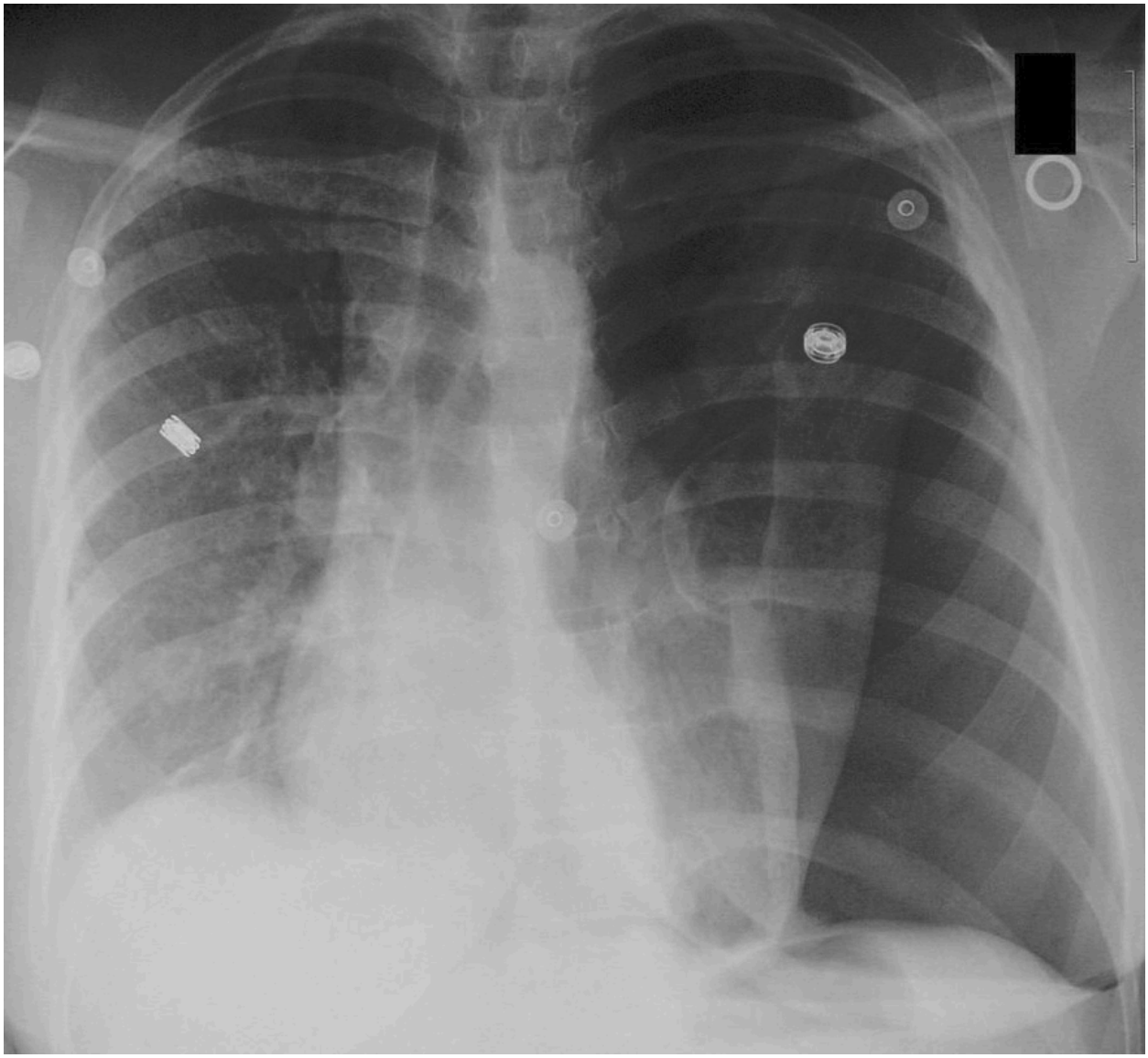
Dilated/Fixed Right Pupil

Chest/Abdomen Exam

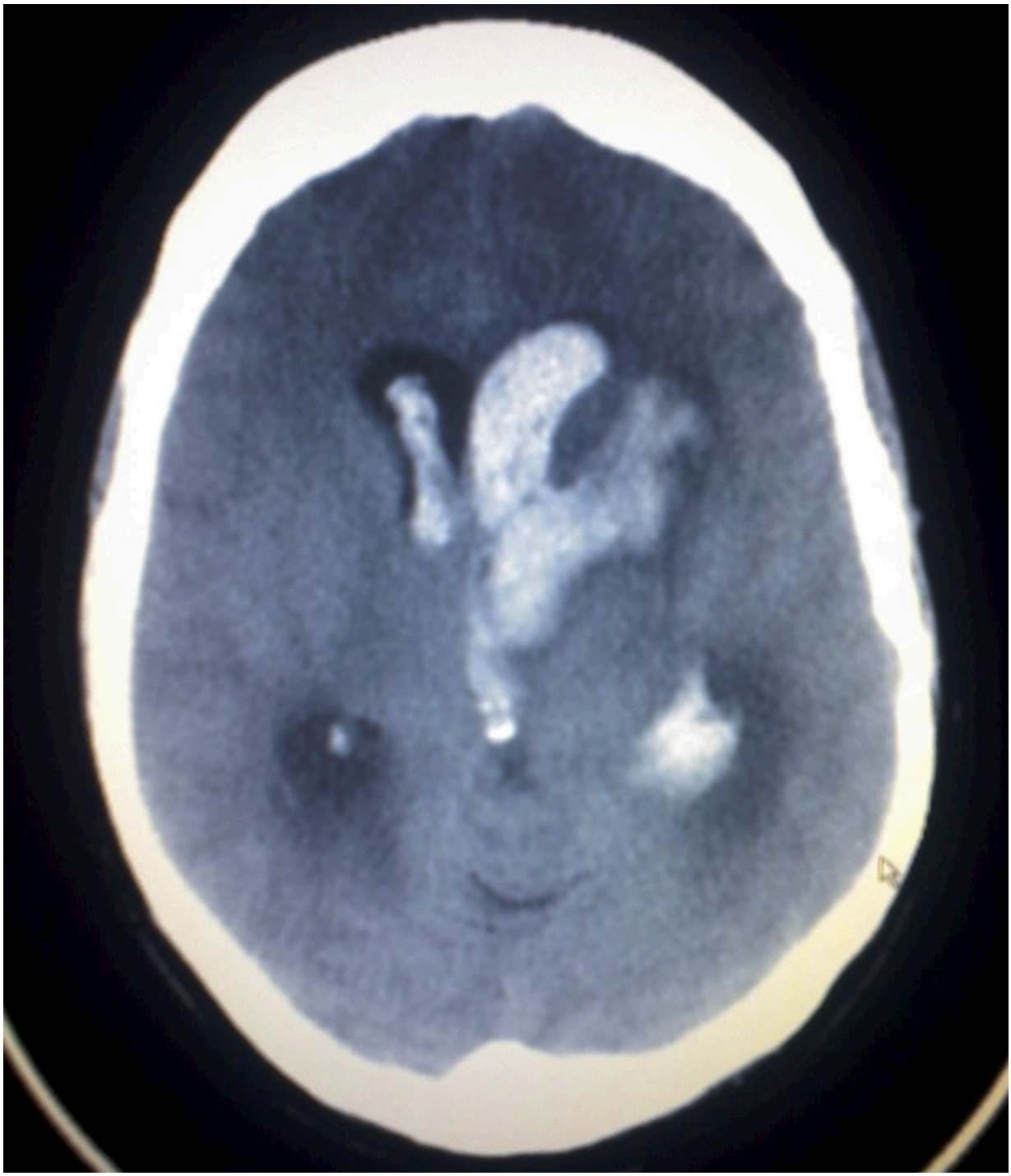
FAST Exam (LUQ)



Chest X-Ray



CT Head (Non-Contrast)



Assessment and Plan Evaluation Scorecard

Screen #1				
Entry	**Text**	**Measure**	**Yes 1**	**No 0**
1	List the components you would include in a Primary Survey:	Airway Maintenance; Intubation		
		Breathing and ventilation		
		Circulation and hemorrhage		
		Disability and GCS		
		Exposure		
2	List the components you would include in a Secondary Survey:	AMPLE (allergies, medications, past illness, last meal, events/HPI)		
		Head/CNS		
		Face/Ears/Mouth		
		Neck/Cervical Spine		
		Chest		
		Abdomen		
		Pelvis		
		Genitals		
		MSK		
		Roll Patient		
		Thoracic, Lumbar, Sacral Spine		
		Rectal Tone/Bleeding		
3	What errors and omissions did you notice in the video of the patient's primary and secondary surveys:	Patient did not arrive in cervical collar		
		Airway was not checked		
		Cervical collar was placed on patient		
		Did not perform needle aspiration		
		Did not insert a chest tube		
		GCS incorrectly stated as 12 not of 7		
		Patient not intubated due to GCS of 7		
		FAST Exam not performed		
		Did not check ears		
		Did not roll patient		
		Did not examine thoracic, lumbar, or sacral spine		
		Did not perform digital rectal exam		
		SUB-TOTAL (29 possible)		

Emergency Medicine
Primary/Secondary Surveys for the Trauma Patient

Screen #2				
Entry	**Text**	**Measure**	**Yes 1**	**No 0**
4	A CXR was ordered for the patient. Interpret and provide your evaluation of the following image:	Visible left side visceral pleural edge		
		No left side lung markings		
		Ipsilateral increased intercostal spaces		
		Shift of the mediastinum		
		Depression of the hemi-diaphragm		
5	Due to the possibility of internal bleeding, a FAST exam was performed on the patient. Interpret and provide your evaluation of the following FAST image of the LUQ:	Perisplenic fluid		
6	Due to the decreased GCS and facial laceration, a Head CT was ordered. Interpret and provide your evaluation of the following image:	Intraparenchymal hemorrhage		
			SUB-TOTAL (7 possible)	

Screen #3				
Entry	**Text**	**Measure**	**Yes 1**	**No 0**
5	Based on what you have learned from the history, surveys and images, list the top six problems you have identified in this patient.	Intraparenchymal hemorrhage		
		Concussion/ Encephalopathy		
		Spinal Trauma		
		Tension Pneumothorax		
		Intra-peritoneal Bleeding		
6	What other labs, imaging, or interventions would you order?	CBC, BMP, UA, Coagulation Panel, Type/Cross, EtOH, Drugs of Abuse, EKG, CT abdomen		
			SUB-TOTAL (6 possible)	

Emergency Medicine
Primary/Secondary Surveys for the Trauma Patient

Screen #4				
Entry	**Text**	**Measure**	**Yes 1**	**No 0**
7	Type a brief, 3-5 sentence communication regarding the patient to the attending to whom you are transferring care. Describe the patient's HPI, exam findings, differential, and proposed action plan:	Patient's name		
		Patient's age		
		MVC, restrained driver, unconscious		
		GCS, Tension Pneumo, Facial Laceration, Epidural Hematoma, Splenic Rupture		
		Transferring for surgical exploration		
		SUB-TOTAL (5 possible)		
		TOTAL (47 possible)		

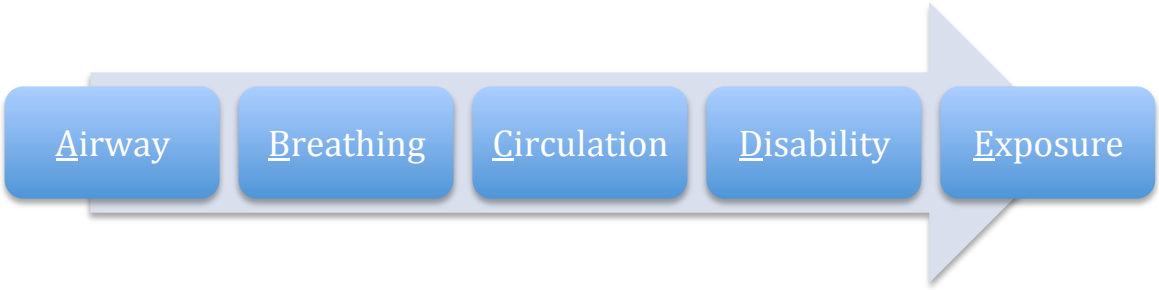
Post-OSCE Reference Guide

Goals of Trauma Care

Evaluation of patients within an ER requires speed, efficiency, and an examination methodology that ensures the proper diagnosis of life-threatening conditions. Primary and secondary surveys of trauma patients provide a structured and logical approach to assessing patient status and determining the next steps in patient care. Medical students are taught the process flow of trauma surveys to better prepare them for treating trauma patients during residency.

Elements of a Primary Survey[2]

When arriving at an ER's trauma room, a patient's vital functions must be quickly assessed via a Primary Survey and definitive care provided to stabilize the patient for a more thorough examination. Elements of a Primary Survey are remembered through the mnemonic "ABCDE":



- **Airway** – Is the airway patent? Do trauma or foreign bodies obstruct the airway, preventing the patient from taking a breath? Is there cervical spine tenderness that point to possible loss of neck stability?
  - Assessed though visual examination, chin-lift or jaw thrust.
  - Possible interventions include: intubation, cervical collar placement
- **Breathing** – A patent airway does not guarantee that your patient is ventilating appropriately. Do you have breath sounds bilaterally? What is the patient's oxygen saturation? Are there signs of chest trauma?
  - Assessed though visual examination, auscultation, palpation, percussion
  - Possible interventions include: needle aspiration, chest tube insertion, chest x-ray
- **Circulation** – A low or falling blood pressure may be indicative of blood loss and/or internal bleeding. Perhaps the patient is in cardiac arrest. Why is the blood pressure and heart rate? Does the patient have strong central and peripheral pulses? Is there obvious external bleeding? Is there bruising or tenderness that indicates possible internal hemorrhage?
  - Assessed though visual examination, palpation of pulses
  - Possible interventions include: fluids, plasma, packed RBC, FAST exam

- **Disability** – Using the Glasgow Coma Scale (see below), a patient's neurologic status can be quickly assessed. A severely decreased level of consciousness indicates a high risk of imminent respiratory and/or cardiovascular failure.
    - Assessed though visual and physical examination and patient response to command
    - Possible interventions include: intubation
- **Exposure** – Make sure the patient is undressed in preparation for a more thorough secondary examination. Ensure they are sufficiently warm, though, to prevent hypothermia.

Glasgow Coma Scale

The Glasgow Coma Scale (GCS) is a standardized approach to measuring a patient's neurologic status. Calculate their total score based on the following table:

Eyes	Does not open eyes	1
	Opens eyes to painful stimulus	2
	Opens eyes on verbal command	3
	Opens eyes spontaneously	4
Verbal	Makes no sound	1
	Incomprehensible sounds	2
	Utters inappropriate words	3
	Confused and disoriented	4
	Oriented and conversing normally	5
Motor	Not moving	1
	Decerebrate (extension to pain)	2
	Decorticate (flexion to pain)	3
	Withdrawal from, movement to pain	4
	Localizes painful stimuli	5
	Obeys commands to move extremities	6

Communicate the scores of each of the three sections and the sum total GCS score. Generally:

- GCS 13-15 = Minor
- GCS 09-12 = Moderate
- GCS 03-08 = Severe → Intubate and acquire Head CT

When to Perform a FAST Exam

A Focused Abdominal Sonography for Trauma (FAST) is an abdominal ultrasound that can be used during either the primary or secondary as a diagnostic test for blunt trauma and internal bleeding. Traditionally, the FAST looks into four areas: perihepatic space (Morison's Pouch), perisplenic space, pericardium, and the pelvis.

When a FAST is appropriate can be determined through the follow flowchart:

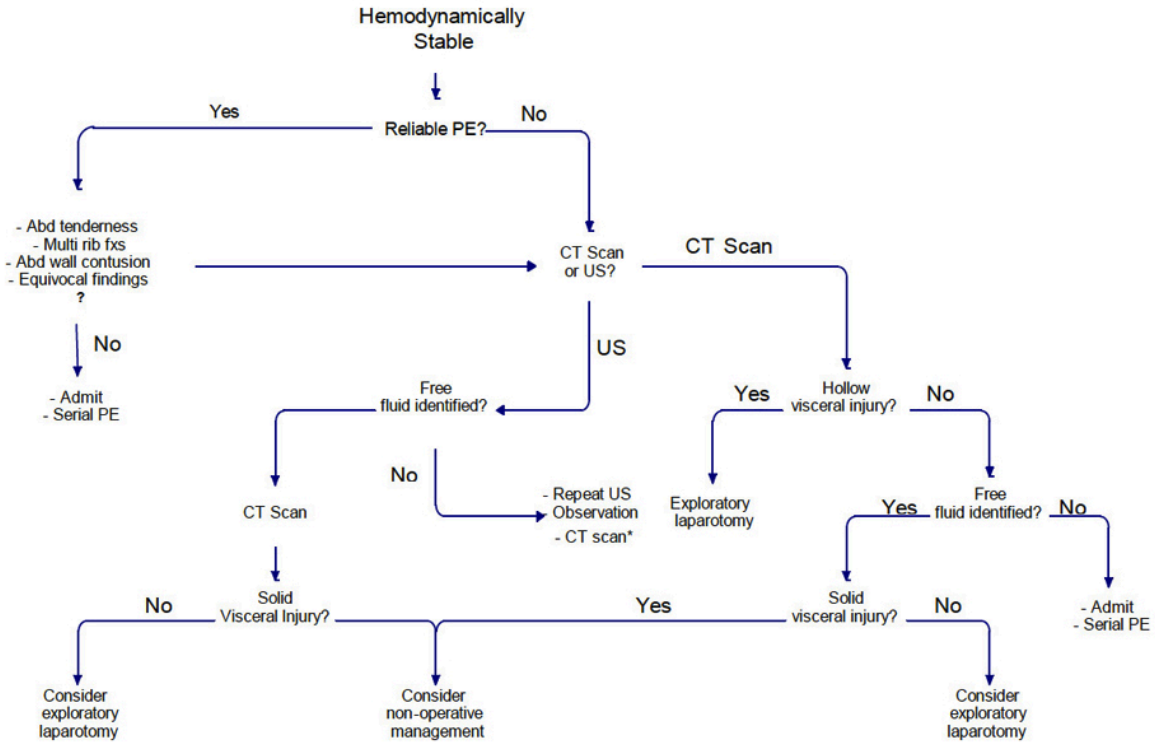


Figure 1 - EAST: J Trauma. 53(3): 602-615, September 2002.[3]

Elements of a Secondary Survey[2]

The secondary survey is performed after the patient's vital functions are assessed and addressed within the primary survey. The goal of the secondary survey is to perform a thorough, head-to-toe examination of the patient and determine the type(s) of trauma experienced by the patient. The secondary survey includes:

- **AMPLE** – An understanding of the patient's Allergies, Medications, Past illnesses, Last meal, and Events of the trauma (HPI) should be obtained. This information may be obtained directly form the patient, or from family members or EMS.
- **HEENT** – Perform a thorough inspection of the patient's head looking for bruising, open wounds, or fractures. Examine both eyes for trauma and pupillary response. Examine both ears looking for trauma or hematympanum (blood in the tympanic cavity). Examine the mouth again for trauma, loose/missing teeth, bleeding, and swelling. Palpate the cervical spine for tenderness. If there is tenderness, keep the patient in a cervical collar until imaging is performed. If there is no tenderness to palpation, check for pain on passive/active movement.
- **Chest** – Look for bruising, lacerations, punctures, and evidence of rib fractures. Palpate the sternum and entire rib cage. Auscultate heart and breath sounds, recheck pulses, and confirm stable vital signs.
- **Abdomen** – Examine for bruising, lacerations, punctures, and distention. Palpate for diffuse or focal tenderness/pain. Perform a FAST exam is you are suspicious of intraperitoneal bleeding.
- **Pelvis** – Palpate the pelvis for pain and rock the pelvis checking for stability. Pelvic trauma can be a source for significant internal bleeding.
- **Genitourinary** – Examine the perineum for bruising and lacerations. Examine the urethral meatus for bleeding as this may indicate trauma to the urethra or bladder.
- **Musculoskeletal** – Examine and palpate all extremities checking for bruising, lacerations, and evidence of fractures. Check for pain with passive movement.
- **Posterior Trauma/Spine** – Make sure to roll patients on their side (supporting their head and neck) to look for posterior trauma. Palpate the entire length of the thoracic, lumbar, and sacral spine for tenderness or evidence of fracture.
- **Rectal Tone/Bleeding** – Perform a digital rectal exam to assess rectal tone. Decreased rectal tone may indicate spinal cord damage. Also determine if there is blood in the rectum.

Once the secondary survey is complete, the patient may undergo additional lab testing, interventions or imaging depending on the findings of your examination.

Emergency Medicine
Primary/Secondary Surveys for the Trauma Patient

Post OSCE Survey

Date:	

Clerkship (Core/Sub-I):	

This OSCE meant measure your ability to observe, evaluate, and communicate a trauma using primary/secondary surveys. The OSCE was designed to measure your knowledge of:

- Required elements of a primary and secondary survey;
- Lab work, imaging, and interventions that may be required during primary/secondary surveys depending on findings;
- Differential diagnoses suggested of findings; and
- Effective clinical communication

Considering the above stated goals, please provide your input on the following questions:

How effective was the video in assessing your knowledge of a primary and secondary survey?	Not	**1** ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☐	Very
Comments:							

How difficult was it to determine the errors and omissions within the primary survey?	Not	**1** ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☐	Very
Comments:							

How difficult was it to determine the errors and omissions within the secondary survey?	Not	**1** ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☐	Very
Comments:							

Emergency Medicine
Primary/Secondary Surveys for the Trauma Patient

How helpful were the supporting images/videos in your development of a differential diagnosis?	Not	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	Very
Comments:							

How difficult was it to interpret the provided Chest X-ray?	Not	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	Very
Comments:							

How difficult was it to interpret the provided FAST Exam?	Not	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	Very
Comments:							

How difficult was it to interpret the provided Head CT?	Not	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	Very
Comments:							

What aspects of the Virtual OSCE did you think worked well?

How would you improve the student experience in the Virtual OSCE?