POCUS BELGIUM

BASIC LEVEL LOGBOOK

Candidate

Introduction:

Point-of care ultrasound is a well-established adjunct to the practice of emergency medicine. The proficiency to recognize a cardiac tamponade, pneumothorax or free fluid in the blink of an eye, has changed medical practice thoroughly. However, ultrasound is an operator-dependent skill. In order to minimize inter-operator variation, education in point-of-care ultrasound is paramount.

Training pathway:

Introduction course

A basic introduction to ultrasound should be acquired by attending an introductory course. This course should comply with following requirements: 16 hours of training, with sufficient attention for hands-on practice and a maximum ratio of 4 candidates per teacher.

The introductory course should contain the four topics written below.

Scanning period and logbook

After the introductory course, the candidates are supposed to apply this knowledge in clinical practice. In the course of minimum 1 year and maximum 2 years they are expected to log images as written below:

Criteria:

- eFAST
  - 25 scans (minimum 5 with pathological findings), of which 10 are supervised
- Abdominal Aorta Aneurysm
  - 25 scans (minimum 5 with pathological findings), of which 10 are supervised
- RUSH
  - 5 scans (minimum 3 with pathological findings), of which 5 are supervised
- Echo in life support
  - 20 scans (minimum 5 pathological findings), of which 10 are supervised
- Vascular access
  - 10 procedures, with minimum 2 central venous lines, of which 10 are supervised

Supervision:

Candidates are expected to complete the logbook per patient and per exam, and to collect these images on a USB-stick, in order to evaluate the images during the competence testing day.

These images are preferentially stored as loops, as this facilitates interpretation. For the cardiac echo's (included in the RUSH exam), loops (3s) are obligatory, because still images provide insufficient information. As a backup procedure for ultrasound machines incapable of storing loops, loops may be recorded on a smartphone.

Minimum 10 scans per subject should be supervised, as supervision contributes to faster acquisition and more accurate interpretation of the images.

Competence testing

During one day, both theoretical (knobology, basic physics and artefacts) and practical knowledge are tested.

Becoming a supervisor

After acquiring a level 1 attestation, progression to supervisor can be made. The only requirement is attaining one year of regular ultrasound practice after the completion of level 1. The request can be done through an email to the ultrasound taskforce. The candidate will then be added to the register.

POCUS – VASCULAR ACCESS

Patient demographics	
Patientnumber or Initials & DOB	Date:
	Operator:
	Supervisor & signature:

Indication			
O Cardiac arrest	O Hypotension	O Shock	O Sepsis
O Reduced consciousness	O Obesitas	O IV drug use	O Peripheral edema
O Failure to cannulate with traditional technique		O Other specify:	

Place			
O Central line	O Right Jugular vein	O Right Subclavian vein	O Right Femoral vein
	O Left Jugular vein	O Left Subclavian vein	O Left Femoral vein
O Peripheral line	O R Cephalic vein	O R Brachial vein	O R Basilic vein
	O L Cephalic vein	O L Brachial vein	O L Basilic vein
	O R Saphenous vein	O Other specify:	
	O L Saphenous vein	O Other specify:	

Technique	
O Out-of-plane view	O In-plane view

Success of procedure			
O Successful placement		O Unsuccessful placement	
Number of attempts	O 1	O 2	O More

POCUS – AAA

Patient demographics	
Patientnumber or Initials & DOB	Date:
	Operator:
	Supervisor & signature:

Indication			
O Abdominal pain	O Back pain	O Pulsatile abdominal mass	O Tachycardia
O Chest pain	O Flank pain	O Hypotension	O Syncope
O Educational	O Other:		

Views		
Proximal Transverse view	O Complete	O Inadequate
Celiac artery	O Visualized	O Not visualised
Superior mesenteric artery	O Visualized	O Not visualised
Distal transverse view	O Complete	O Inadequate
Bifurcation	O Visualized	O Not visualised
Sagittal view	O Complete	O Inadequate

Findings			
Aneurysm			
O Present	O Absent	O Indeterminate	
O Suprarenal	O Infrarenal	O Both	O Iliac
Maximal aorta diameter: cm			
Dissection			
O Present	O Absent	O Indeterminate	
Thrombus			
O Present	O Absent	O Indeterminate	

POCUS – E-FAST

Patient demographics	
Patientnumber or Initials & DOB	Date:
	Operator:
	Supervisor & signature:

Indication			
O Blunt trauma	O Abdominal pain	O Hypotension	O Dyspnea
O Penetrating trauma	O Chest pain	O Tachycardia	O Pregnancy
O Education	O Other:		

Views			
Hepatorenal	O Adequate	O Limited	O Not obtained
Perisplenic	O Adequate	O Limited	O Not obtained
Suprapubic	O Adequate (bladder full)	O Limited	O Not obtained
Pericardial	O Adequate	O Limited	O Not obtained
Right thorax for fluid	O Adequate	O Limited	O Not obtained
Right thorax for lung sliding	O Adequate	O Limited	O Not obtained
Left thorax for fluid	O Adequate	O Limited	O Not obtained
Left thorax for lung sliding	O Adequate	O Limited	O Not obtained

Findings			
Free fluid			
Hepatorenal	O Absent	O Present	O Indeterminate
Perisplenic	O Absent	O Present	O Indeterminate
Suprapubic	O Absent	O Present	O Indeterminate
Right thorax	O Absent	O Present	O Indeterminate
Left thorax	O Absent	O Present	O Indeterminate

Findings					
Pericardial effusion					
Pericardial effusion?		O Absent	O Present	O Indeterminate	
Size?		O Small	O Moderate	O Large	
O Evidence of tamponade					
Pneumothorax					
O Present	O LEFT	O No lungsliding	O No B-lines	O No lungpulse	O Lungpoint
		O M-mode barcode			
	O RIGHT	O No lungsliding	O No B-lines	O No lungpulse	O Lungpoint
		O M-mode barcode			
O Absent	O LEFT	O Lungsliding	O B-lines	O Lungpulse	
		O M-mode seashore			
	O RIGHT	O Lungsliding	O B-lines	O Lungpulse	
		O M-mode seashore			

POCUS – RUSH

Patient demographics	
Patientnumber or Initials & DOB	Date:
	Operator:
	Supervisor & signature:

Hemodynamics & Ventilation			
Heartrate:	BP:	RR:	O2 sat:
ETT: Y / N	PEEP:	ETCO2:	

Indication			
O Cardiac arrest	O Hypotension	O Shock	O Shortness of breath
O Tachypnea	O Tachycardia	O Chest pain	O Other:

THE PUMP			
Views & Findings			
Subxiphoidal (4 Chambers)	O Adequate	O Limited	O Not obtained
PLA	O Adequate	O Limited	O Not obtained
PSA	O Adequate	O Limited	O Not obtained
A4C	O Adequate	O Limited	O Not obtained
Cardiac motion			
O Present (organized cardiac movement)		O Absent (no organized cardiac movement)	
Pericardial effusion			
O Absent		O Indeterminate	
O Present	O Small	O Moderate	O Large
O Evidence of tamponade	O R atrial collapse	O R ventricular collapse	
Global ventricular function			
O Hyperdynamic	O Normal	O Moderately reduced	O Severely reduced
Right ventricular size (compared to LV size)			
O Normal	O Dilated	O Indeterminate	
O Clot visualisation	O D-sign (septal flattening)	O Paradoxical septal motion	

THE TANK

Views & Findings

Subxiphoidal IVC	O Adequate	O Limited	O Not obtained
Pleural effusion R	O Adequate	O Limited	O Not obtained
Pleural effusion L	O Adequate	O Limited	O Not obtained
Lung sliding R	O Adequate	O Limited	O Not obtained
Lung sliding L	O Adequate	O Limited	O Not obtained
Hepatorenal	O Adequate	O Limited	O Not obtained
Splenorenal	O Adequate	O Limited	O Not obtained
Suprapubic	O Adequate	O Limited	O Not obtained

IVC

O Normal	O Dilated / phletoric	O Collapsed (> 50%)	O Indeterminate

Lung

O Pneumothorax:	O Left	O No lungsliding	O No B-lines	O No lungpulse	O Lungpoint
	O Right	O No lungsliding	O No B-lines	O No lungpulse	O Lungpoint
O Pleural effusion:	O Left	O Right	O A-lines present	O No A-lines present	
O > 3 B-lines focal	O > 3 B-lines diffuse	O Mobile	O Not mobile		

FAST

Hepatorenal free fluid	O Absent	O Present	O Indeterminate
Perisplenic free fluid	O Absent	O Present	O Indeterminate
Suprapubic free fluid	O Absent	O Present	O Indeterminate

THE PIPES

Views & Findings

Proximal transverse view	O Complete	O Inadequate
Celiac artery	O Visualised	O Not visualised
Superior mesenteric artery	O Visualised	O Not visualised
Distal transverse view	O Complete	O Inadequate
Bifurcation	O Visualised	O Not visualised
Sagittal view	O Complete	O Inadequate
Femoral vein	O Complete	O Inadequate
Popliteal vein	O Complete	O Inadequate

Aneurysm

O Present	O Absent	O Indeterminate	
O Suprarenal	O Infrarenal	O Both	O Iliac

Dissection

O Present	O Absent	O Indeterminate

DVT (optional)

O R Prox fem vein DVT	O L Prox fem vein DVT
O Popliteal vein DVT	O Popliteal vein DVT

SUMMARY			
SHOCK	PUMP	TANK	PIPE
□ Hypovolemic shock	Hypercontractile Small heart size	Flat IVC Peritoneal / Pleural fluid	AAA Aorta dissection
□ Cardiogenic shock	Hypocontractile heart Dilated heart size	Distended IVC Lung rockets Pleural effusion / ascites	Normal
□ Obstructive shock	Pericardial effusion RV strain Hypercontractile heart	Distended IVC Absent lung sliding	DVT
□ Distributive shock	Hypercontractile heart Hypocontractile (late)	Normal / small IVC Pleural fluid (empyema) Pertioneal fluid (peritonitis)	Normal

END CONCLUSION RUSH

POCUS – ECHO in life support

Patient demographics	
Patientnumber or Initials & DOB	Date:
	Operator:
	Supervisor & signature:

Hemodynamics & Ventilation			
Heartrate:	BP:	RR:	O2 sat:
ETT: Y / N	PEEP:	ETCO2:	

Indication			
O Cardiac arrest	O Hypotension	O Shock	O Shortness of breath
O Tachypnea	O Tachycardia	O Chest pain	O Other:

CARDIAC VIEWS			
Views & Findings			
Subxiphoidal (4 Chambers)	O Adequate	O Limited	O Not obtained
PLA	O Adequate	O Limited	O Not obtained
PSA	O Adequate	O Limited	O Not obtained
A4C	O Adequate	O Limited	O Not obtained
Cardiac motion			
O Present (organized cardiac movement)		O Absent (no organized cardiac movement)	
Pericardial effusion			
O Absent		O Indeterminate	
O Present	O Small	O Moderate	O Large
O Evidence of tamponade	O R atrial collapse	O R ventricular collapse	
Global ventricular function			
O Hyperdynamic	O Normal	O Moderately reduced	O Severely reduced
Right ventricular size (compared to LV size)			
O Normal	O Dilated	O Indeterminate	
O Clot visualisation	O D-sign (septal flattening)	O Paradoxical septal motion	