JUST

Junior doctor
Ultra
Sound
Training
for FY2s

The Mid Yorkshire Hospitals NHS
NHS Trust

MESH
MEDICAL EDUCATION AND SIMULATION HUB

Creating a new generation of Ultrasound savvy Foundation Doctors in the UK

Introduction:

- Venepuncture, peripheral vascular access (peripheral IVA) and arterial puncture (ABG sampling) are recognized core skills for junior doctors[1].
- Sometimes these can be challenging due to various patient factors like obesity or intravenous drug usage or existing conditions like chronic renal failure.
- In those circumstances ultrasound guidance is utilised by trained senior clinicians especially in Emergency Medicine and Anaesthesiology.
- However junior doctors are called upon more often to perform difficult peripheral IV access and ABG sampling as the first point of contact and are therefore the ones who are most in need of this skill.
- Therefore a training programme was devised to ascertain whether foundation year two doctors, FY2s (first year post intern) could successfully acquire this skill with a short training course.

Method:

- All FY2s in Yorkshire and Humber region, UK were invited to apply for the course.
- A pre course questionnaire was given to the enrolled FY2s to ascertain previous training in medical ultrasound.
- The training comprised of 70 minutes of didactic teaching and 120 minutes of supervised scanning.
- The didactic teaching covered basic physics of ultrasound, knobology, governance and a lecture demonstrating the procedure.
- The scan practice was on ultrasound compatible training blocks, phantoms and live models using a linear transducer.
- Following the training, FY2s were assessed formatively on ultrasound compatible training blocks using a seven-component competency assessment tool created using Kirk-Patrick learning and training model[2] (figure 1)

Results:

- 94 FY2s who applied for the course were accommodated.
- 87 completed the pre-course questionnaire. 85.0% (n=74) did not have any training in medical ultrasound. Only 15% (n=13) had training, which was mostly informal (figure 2)
- After the short training course 96.8% (n=91) FY2s were able to independently stabilize the transducer on the ultrasound-training block (figure 3)
- 95.7% (n=90) of the FY2s were able to independently optimize the images (figure 4)
- 91.5% (n=86) of FY2s were able to achieve both longitudinal and transverse images of the vessels independently (figure 4).
- 86.2% (n=81) were able to insert the needle into the vessels on both longitudinal and transverse planes independently demonstrating the ability to track the needle (figure 5)
- FY2s who were unable to achieve the above independently succeeded after a minimal prompt.

Conclusion:

- To the best of our knowledge this is the first ever procedural ultrasound training course conducted in the UK aimed at Foundation Year 2 doctors.
- This study shows encouraging signs that ultrasound guided IV access and ABG sampling could be successfully taught to first year post intern doctors with a short training course.
- The overwhelming demand for the course also highlights that this course is addressing an unmet need amongst junior doctors.

References:

1. Academy of Medical Royal Colleges; Foundation programme curriculum 2012; procedures p31
2. Kirkpatrick D. Evaluating Training Programs. San Francisco: Berrett-Koehler Publishers; 1994.

US Guided Peripheral IV Access and ABG Sampling Traning for FY2s in Yorkshire and Humber Deanery

Formative Assessment Form

Student Name: Instructor Name:

Objectives	Unable to achieve despite prompt	Achieved with prompt	Achieved Independently
1) Optimizes the images on the US training block			
2) Stabilizes the transducer on the US training block			
3) Acquires longitudinal and transverse images of the vessels of US training block			
4) Inserts the needle into the vessel/s of the US training block using the ultrasound as a guide Demonstrates that the student has the knowledge and the skill to keep the needle tip in vision all the time (Hand - eye coordination) **4 a) TS – Transducer follows the needle** **4 b) LS – Needle follows the transducer**			
5) Differentiates the artery from vein by explaining the ultrasound differences in texture and appearance -upper limb only (either on each other or explains verbally)			
6) Disposes the sharps in a safe and controlled manner			
7) Demonstrates understanding of the importance of maintaining an aseptic environment when performing invasive procedures			
Comments			

Figure 1: Formative assessment form

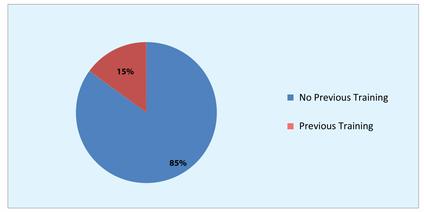

Figure 2: Previous Training on Medical Ultarsound

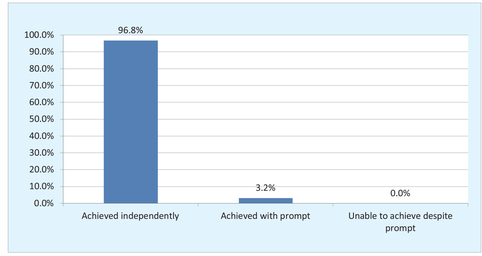

Figure 3: Stabilization of the transducer

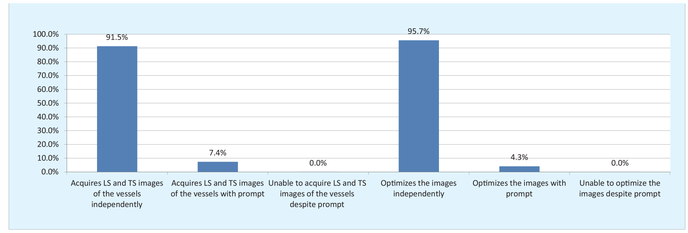

Figure 4: Ultrasound image acquisition and optimization

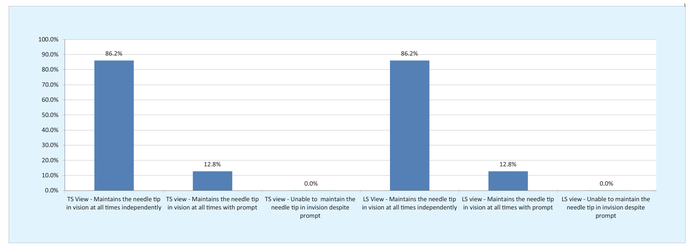

Figure 5: Needle tip visualization during ultrasound guided vascular access

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