First Ever Procedural Ultrasound Training for Medical Students in the UK

Introduction:
- The use of ultrasound to guide invasive procedures is steadily growing.
- The increased accuracy, decreased complications and overall patient and clinician satisfaction of ultrasound-guided procedures makes it a useful skill to acquire.
- In this study we explored whether basic procedural ultrasound training in the form of ultrasound guided peripheral vascular access and arterial blood gas sampling can be taught to medical students by focusing on generic skills that could be individually assessed.

Method:
- All 5th year medical students who attended clinical placements at Dewsbury and District Hospital were enrolled.
- A pre course questionnaire was given 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, students were assessed formatively on ultrasound compatible training blocks using a seven-component competency assessment tool created using Kirk-Patrick learning and training model.

Results:
- Total of 59 students were enrolled on to this training course.
- 94.9% (n=56) did not have any training in medical ultrasound. Only 5.1% (n=3) had training, which was informal.
- 84.7% (n=50) students were able to independently stabilize the transducer on the ultrasound training block.
- 69.8% (n=53) of the students were able to independently optimize the images on the ultrasound-training block.
- 91.8% (n=54) of students were able to achieve both longitudinal and transverse images of the vessels on the ultrasound training block independently.
- 74.6% (n=44) students were able to insert the needle into the vessels on both longitudinal and transverse planes independently demonstrating the ability to track the needle.
- Students who were unable to achieve the above independently succeeded after a minimal prompt. Prompting was needed mainly in the area of transducer stabilization.

Conclusion:
- To the best of our knowledge this is the first ever procedural ultrasound training course conducted in the UK for medical students.
- The majority of students were able to demonstrate the generic procedural ultrasound skills independently with limited training.
- This study suggests that skills requiring hand-eye co-ordination such as transducer stabilization is more challenging for students. This needs to be more intensively targeted in procedural ultrasound training programmes designed for medical students.

References: