



## Introduction

Intravenous access, though routine in emergency care, can be challenging in patients with difficult veins. Ultrasound-guided cannulation and vascular access (USGCVA) can improve first-pass success. Paramedics often lack formal USGVA training. This initiative aims to equip them with skills and confidence to perform USGCVA effectively in daily practice.

## Results

Post module surveys were done to assess confidence level and perceived challenges among the paramedics. The analysis is reported as percentage. More than half of participants (63.6%) rated their confidence in performing USGCVA as high (4 out of 5) (Fig. 1). 5 out of 11 participants identified real-time hand-eye coordination as the most challenging aspect.

## Methodology

We conducted a half-day workshop followed by a period of one month for the paramedics to complete ten supervised USGCVA. Eleven paramedics participated with two emergency physicians and one senior paramedic trained in ultrasound as the trainers. The program featured two-hour of didactic lectures followed by two-hour hands-on session using self-made phantoms made of chicken breast models and gel blocks. Paramedics were then required to performed ten supervised USGCVA procedures with 80% success rate in real-time clinical settings under the supervision of emergency physicians and medical officers. All paramedics successfully completed the supervised USGCVA.

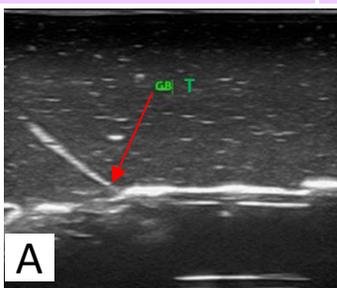


Image A: green iv cannula tip before entering the vessel in longitudinal axis view

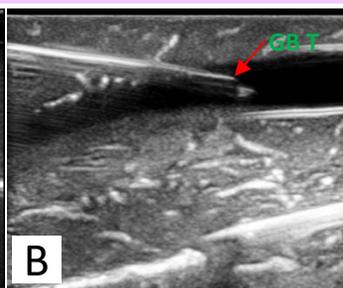


Image B: green iv cannula tip in the vessel in longitudinal axis view

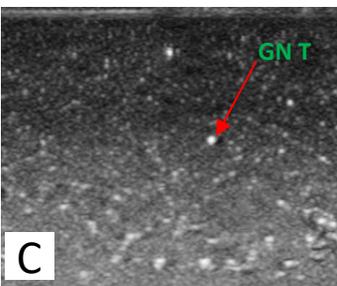


Image C: green needle tip in the subcutaneous tissue in short axis view

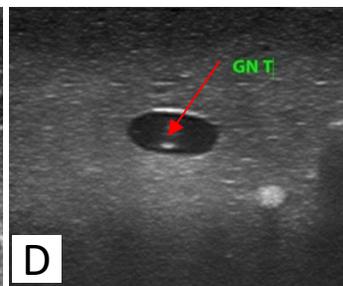
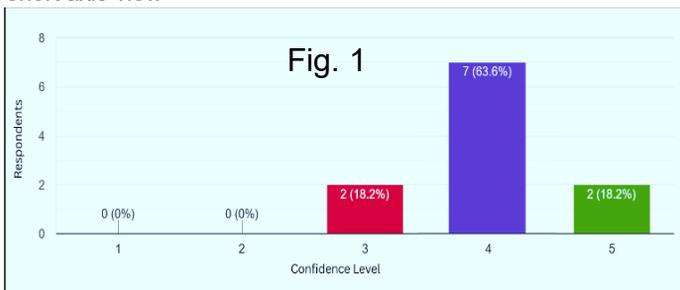


Image D: green needle tip in the vessel in short axis view



## Discussion

Our challenge was the poor ultrasound window with gel blocks, making chicken breast the preferred model despite needing frequent replacement and vein refills. A key limitation was the absence of a pre-course survey, limiting our ability to compare pre- and post-training outcomes.

## References

- Adrian, R. J., Choi, A., Lamba, S. (2022). Teaching Module on Ultrasound-Guided Venous Access Using a Homemade Gel Model for Fourth-Year Medical Students. *MedEdPORTAL*, 18(1), 1222.
- P. Blanco. (2022). Ultrasound-guided vascular cannulation in critical care patients: A practical review. *Med Intensiva*, 40(9),560-571.

## Conclusion

To date, this is the first group of paramedics in Malaysia to have such program leading to hospital privileging. They were awarded credentialing certificate and privileging by the hospital to perform USGCVA. The next agenda is to train all paramedics to be proficient in USGCVA and to have yearly competency assessment to ensure paramedics continue to retain their skill, thus providing safe and quality care for the patient.