

Ensuring safe and effective practice of ascitic drain insertion and lumbar puncture in AMU - using a Mastery Learning-based procedural skills training programme

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Introduction

Lumbar punctures and ascitic drains are vital procedures for IMT and ACCS trainees in Acute Medical Units (AMU). However, many trainees may not have attended procedural skills bootcamps before starting their rotations, potentially limiting their competence. Simulation-based mastery learning has proven effective in rapidly facilitating skill acquisition and promoting safe, independent practice. This study aims to evaluate the impact of implementing mastery learning at the ST1/2 level on trainee competence and service delivery. By assessing pre- and post-intervention skills and examining how this training influences procedural performance, this research seeks to determine whether simulation-based mastery learning improves clinical outcomes, enhances trainee confidence, and streamlines service delivery in the acute medical setting.

Aims

- Assess the baseline procedural competence and training needs of new ST1/2 trainees in lumbar punctures and ascitic drains.
- Implement and evaluate the impact of early simulation-based mastery learning (SBML) sessions on trainee confidence and procedural capability
- Aim to have trainees competent in independent practice by the end of the rotation
- Explore how early upskilling through SBML supports service delivery and optimises trainee roles within the AMU

Methods

Pre-Rotation Questionnaire:

- Assessed prior experience and competence in lumbar punctures and ascitic drains.
- Asked how trainees gained experience and their self-reported skill level.
- Enquired whether trainees felt they needed more simulated training.

Mastery-Based Training Session:

- 1-hour session where trainees reviewed reading materials beforehand.
- Provided opportunities for repeated practice in a simulated setting.
- Supervised by a senior registrar, who offered feedback to improve skills.

Post-Rotation Questionnaire:

- Asked if trainees had the opportunity to perform either procedure during the rotation.
- Assessed current competence level.
- Inquired whether trainees attended the simulated session and if they found it helpful for their training.

Purpose:

- Evaluated the effectiveness of mastery-based learning in improving procedural competence in a supportive, controlled environment.

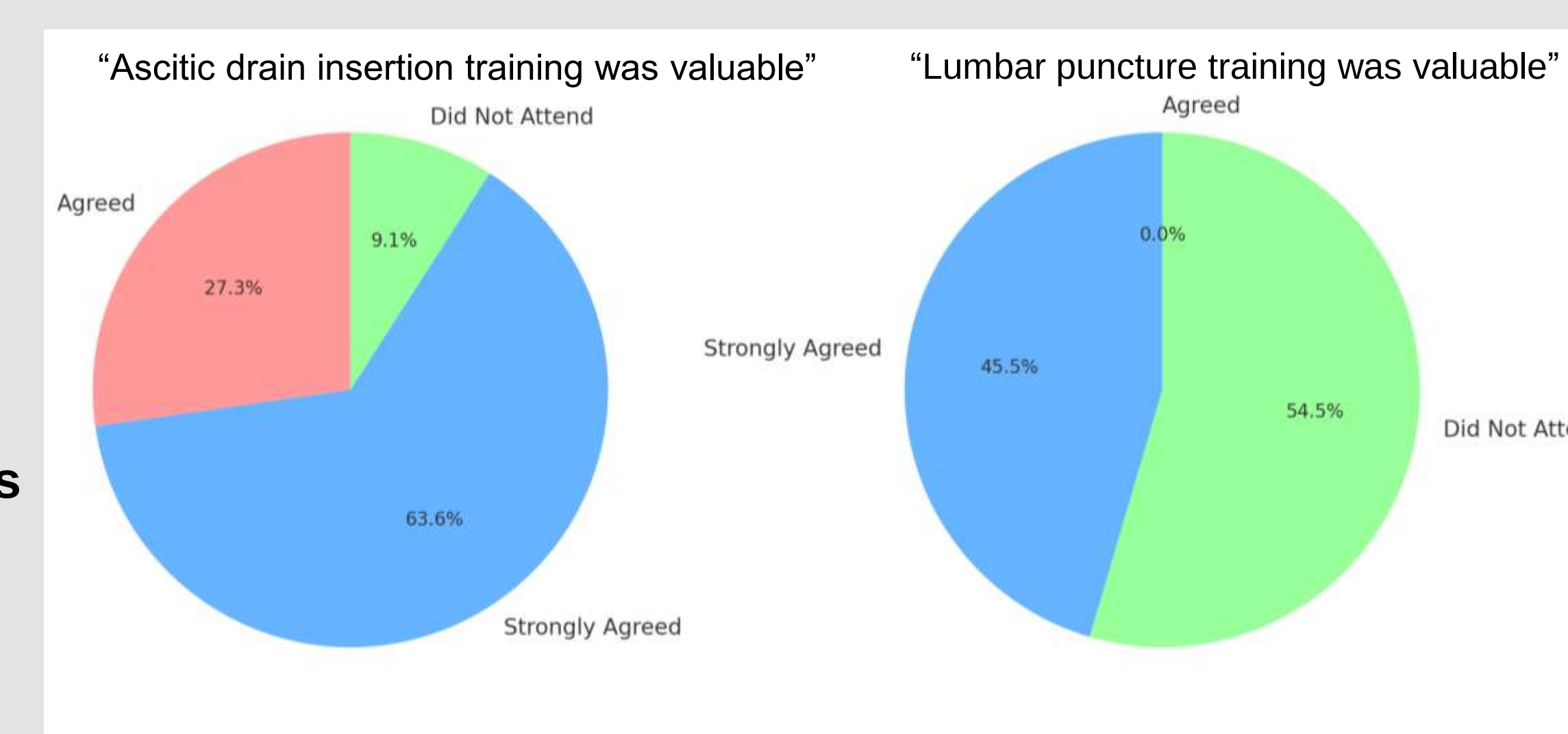
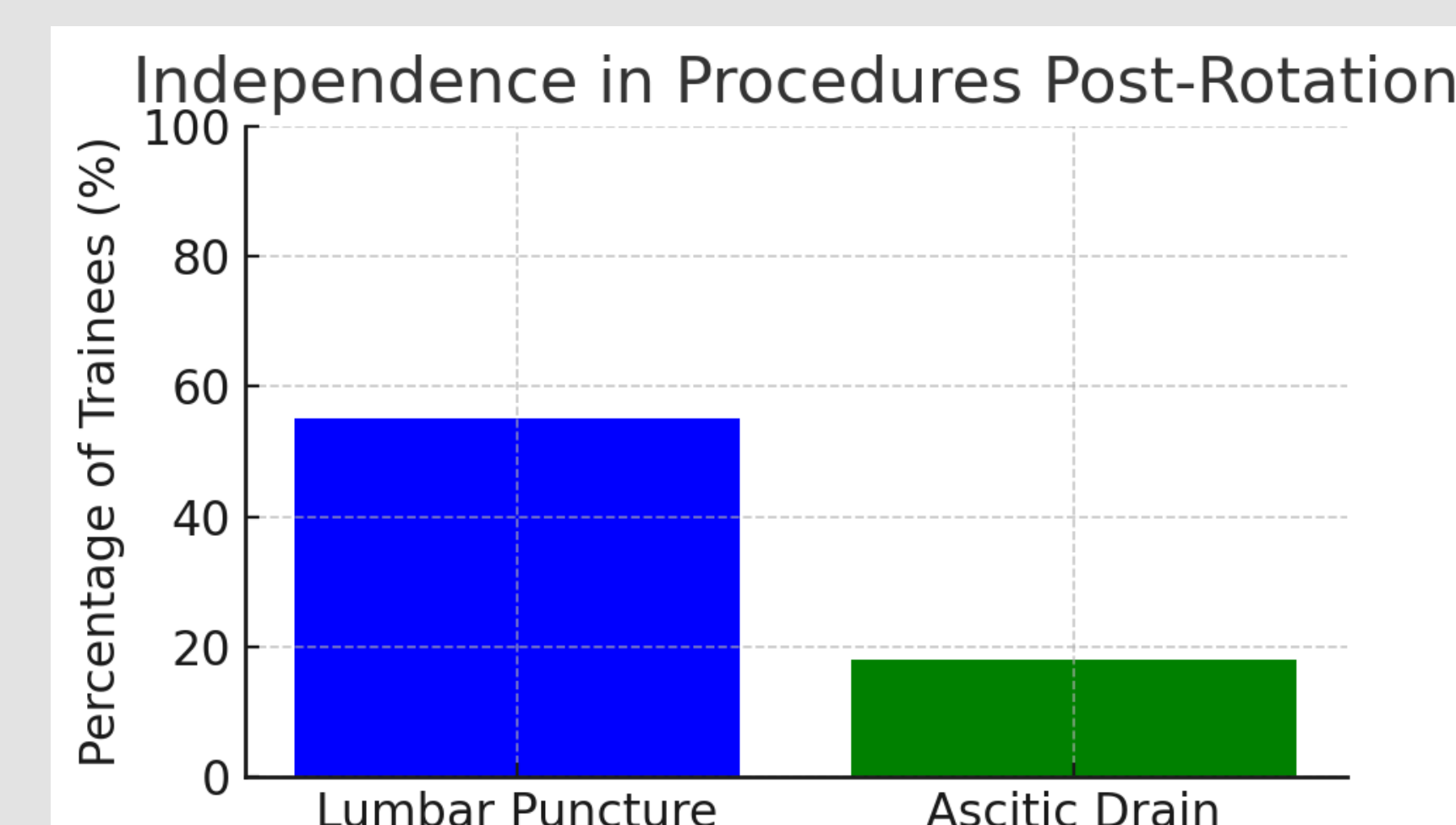
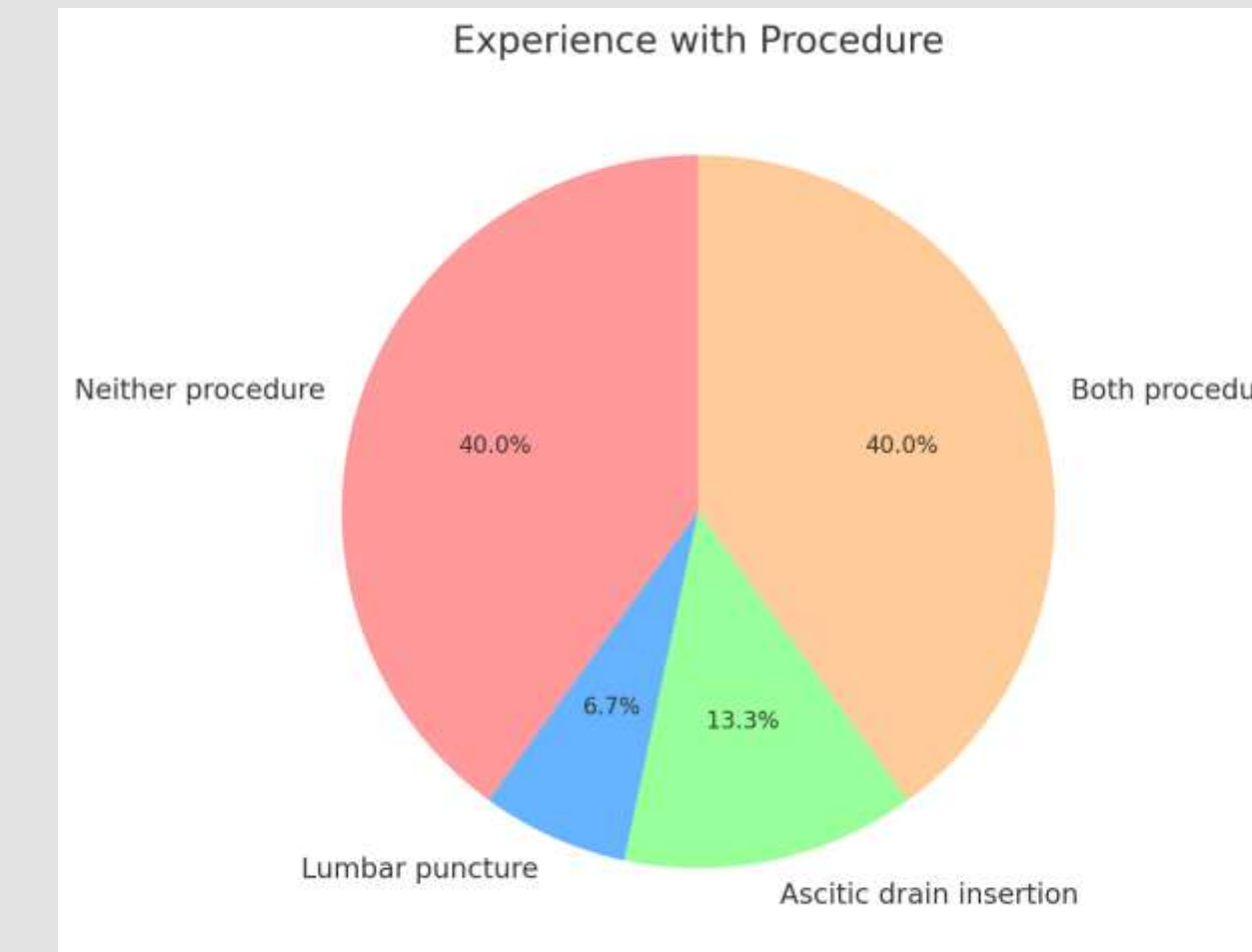
Results

Pre-rotation

- 40% of respondents to the pre-rotation questionnaire indicated that they had no prior experience in either lumbar puncture or ascitic drain insertion
- For those who had prior experience, this was most commonly obtained in previous clinical placements
- 14/15 respondents indicated that they needed further simulated practice

Post-rotation

- Only 1/11 post-rotation questionnaire respondents indicated they were unable to undertake either procedure in clinical setting
- 55% of trainees felt they were able to do an LP independently
- 18% of trainees felt they were able to do ascitic drain insertion independently
- 64% felt they could undertake ascitic drain insertion under direct supervision
- Nearly all trainees agreed that simulated practice was valuable for their development



Conclusion

- Prompt upskilling of junior STs is essential to meet service demands.
- Mastery Learning enables early skills acquisition during AMU placements.
- Junior STs have more opportunities for real-life practice compared to FY doctors, allowing them to practice independently.
- Senior trainees can focus on advanced tasks, enhancing service provision.
- Low trainee competence in ascitic drain insertion:
 - Likely cause: limited exposure compared to lumbar puncture.
 - Suggested solution: increased simulated practice to bridge this gap.
- Pre-rotation and post-rotation questionnaires:
 - Trainees expressed a need for simulated practice in both lumbar puncture and ascitic drain insertion.
 - Feedback from post-rotation questionnaires showed that most trainees found the simulated sessions useful.

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