Pilot study: A qualitative exploration of the value of stroke simulation within interdisciplinary medical education and the impact of using an actor within scenarios

Dr Laura Mitchell*, Dr Kathryn Price*, Dr Christopher White*, Dr Andrew Crowe, Dr Charles Fry, Mr TJ Lasoye & Dr Simon Calvert

*First co-authors; Postgraduate Medical Education Department, King's College Hospital NHS Trust, London
Contact: Lauramitchell6@nhs.net; Kathryn.price3@nhs.net; Christopher.white5@nhs.net

BACKGROUND

- Previous studies demonstrate the value and necessity of high-fidelity stroke simulation within interdisciplinary education[1,2,3].
- We explore whether the stroke simulation experience is enhanced with use of an actor, to supplement traditional high-fidelity simulation.
- This pilot study assesses the educational impact of this programme on staff clinical confidence, teamworking and communication at King's College Hospital NHS Trust, London.

REASONING

- Recognition of stroke and appropriate treatment is time critical, and therefore training is necessary to streamline patient assessment[4].
- There is a national audit of door-to-needle time and evidence shows that simulation can improve this[1,2].
- Inter-professional learning within teams promotes respect, communication & teamwork within the multi-disciplinary team which can be transferred to the clinical environment[3].
- Enhanced education in stroke care amongst non-specialist teams aims to improve awareness of stroke care and complications.

LEARNING OBJECTIVES

- Revise knowledge of stroke including signs and symptoms, stroke mimics, scoring systems and timing.
- Improve patient management skills – responding to results of initial assessment, challenging communication, deteriorating patient.
- Enhance team working – leadership/ followership, inter-professional communication, confidence, graded assertiveness.

COURSE STRUCTURE

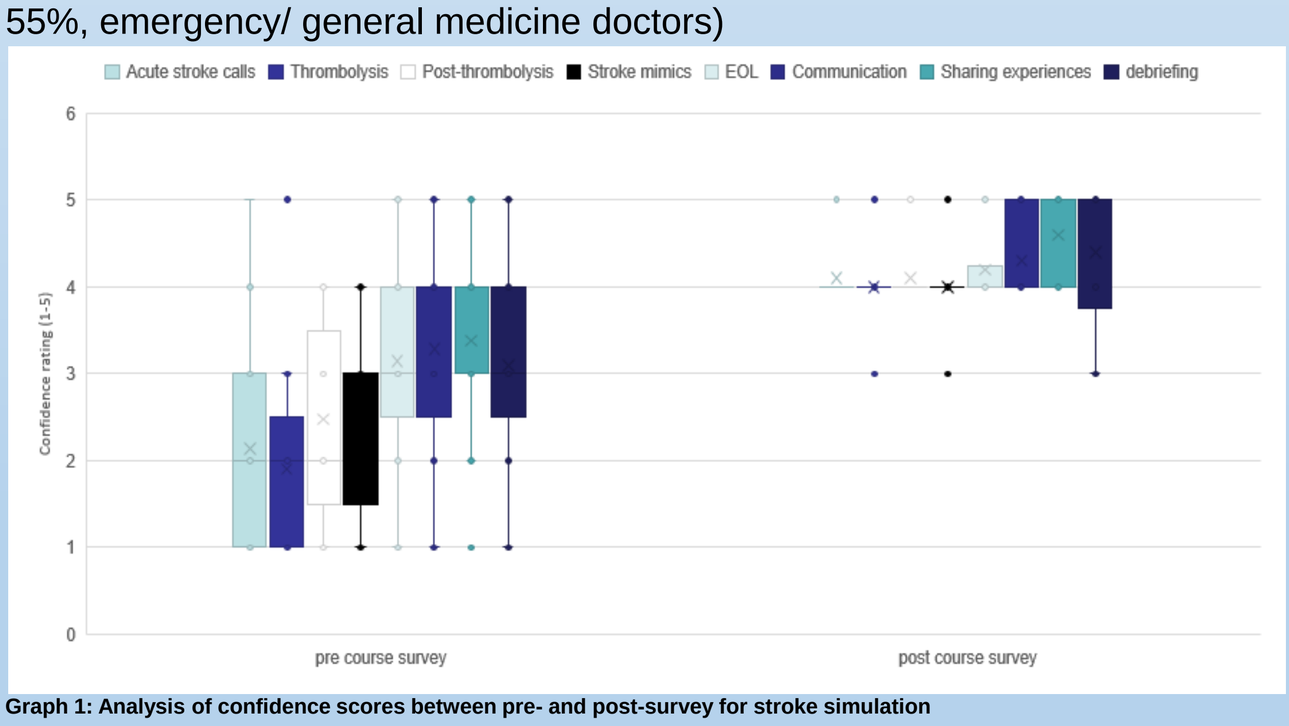
Scenario	Description
1	Thrombolysis (including NIHSS assessment)
2	Thrombectomy (including NIHSS assessment)
3	Stroke mimic (elderly patient with previous stroke & sepsis)
4	Intra-cranial haemorrhage with hypertensive crisis
5	Anaphylaxis following thrombolysis (in the CT scanner)
6	End of life care in a stroke patient with multi-morbidity

METHODOLOGY

- A one-day high-fidelity inter-professional stroke simulation course was run on 3 occasions (2021-2022) using an actor and debriefing of learning points following each scenario.
- Participants included nurses and doctors from stroke, emergency and general medical departments.
- Pre- and post-course questionnaires were performed to assess the learning impact of the course.
- Thematic analysis of focus groups was conducted to review the value of utilizing an actor for scenarios.
- Feedback was used to develop the course and review its educational impact.

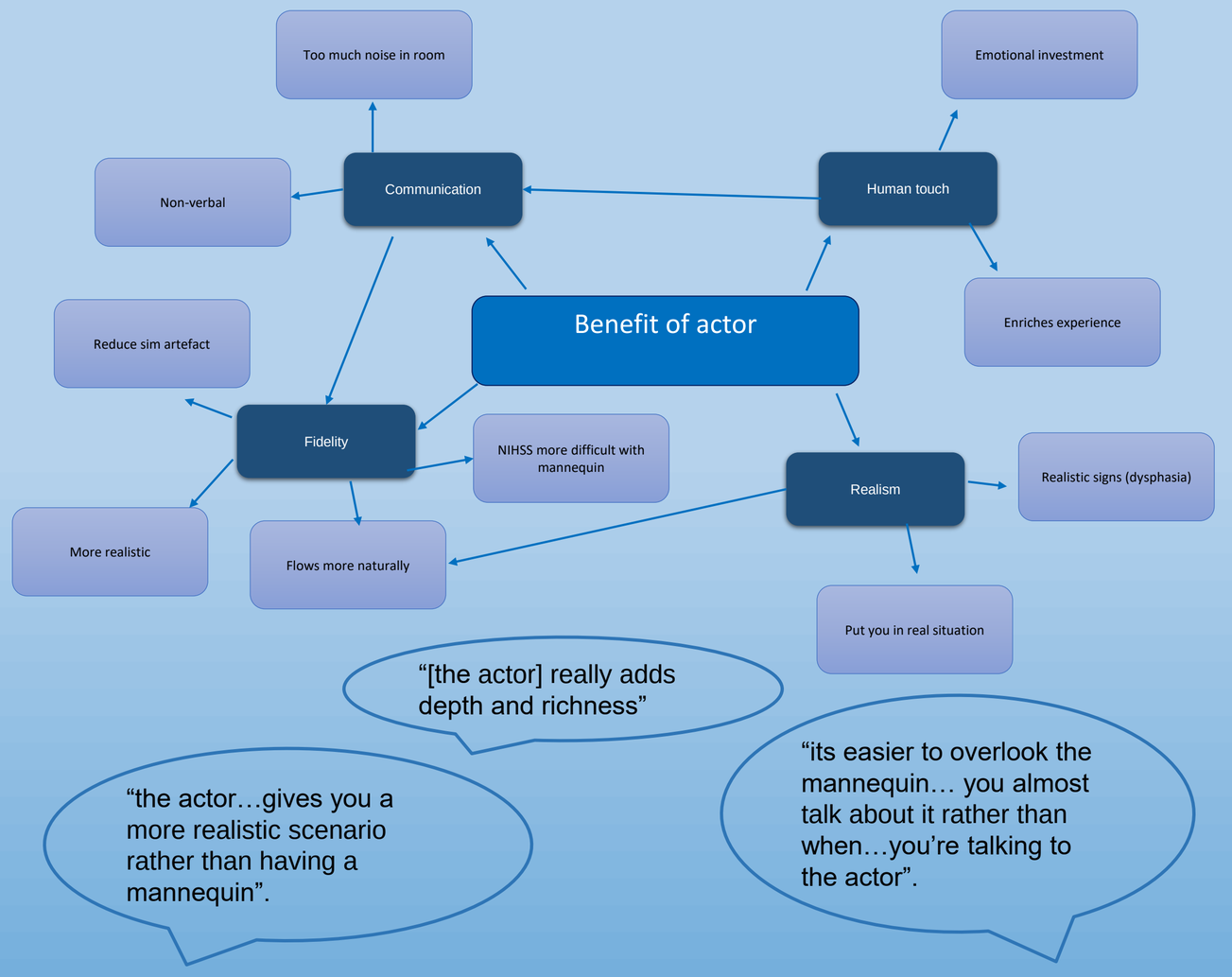
RESULTS

Questionnaire: 21 respondents (35% stroke nurses, 5% stroke doctors & 55%, emergency/ general medicine doctors)



Graph 1: Analysis of confidence scores between pre- and post-survey for stroke simulation

Thematic map from focus groups:



DISCUSSION

- 100% of participants would recommend the course.
- Prior to course participation, candidates were less confident in managing stroke related medical emergencies, and more confident with communication-based skills.
- Following the course, on average the confidence improved in all domains.
- This improvement is particularly evident in the domains of managing acute stroke, thrombolysis, post-thrombolysis & stroke mimics.
- Stroke simulation allows candidates to practice stroke pathways and work within an inter-professional team.
- Participants determined that actors enhance the fidelity, realism, human touch & communication within scenarios.

CONCLUSION

Preliminary evidence shows that actors enhance the learning experience for participants, and high-fidelity simulation improves confidence in stroke assessment, management and teamwork. In future, the use of actors should be incorporated within high-fidelity stroke simulation, for effective and sustainable teaching, as this is essential for upskilling the workforce and enhancing patient care. More work needs to be conducted into any subsequent impact on door to needle time.

REFERENCES

1) Ajmi SC, Advani R, Fjetland L, Kurz KD, Lindner T, Qvindesland SA, Ersdal H, Goyal M, Kvaløy JT, Kurz M., (2019). 'Reducing door-to-needle times in stroke thrombolysis to 13 min through protocol revision and simulation training: a quality improvement project in a Norwegian stroke centre', *BMJ quality & safety*, 1;28(11):939-48.
2) Ajmi SC, Kurz MW, Ersdal H, Lindner T, Goyal M, Issenberg SB, Vossius C., (2021). 'Cost-effectiveness of a quality improvement project, including simulation-based training, on reducing door-to-needle times in stroke thrombolysis', *BMJ Quality & Safety*, (volume not listed).
3) Ball, K. Bryant, Ca. & Birns, J., (2017). *Pan-London multi-centre simulation training in stroke and geriatric medicine.* Available [Online]: Slide 1 (demec.org.uk).
4) Casolla B, Leciñana MA de, Neves R, et al, (2020). 'Simulation training programs for acute stroke care: Objectives and standards of methodology', *European Stroke Journal,*5(4):328-335. 5)
5) Tahtali D, Bohmann F, Rostek P, Misselwitz B, Reihs A, Heringer F, Jahnke K, Steinmetz H, Pfeilschifter W., (2016). 'Crew resource management and simulator training in acute stroke therapy', *Nervenarzt,* 87:1322–1331.
6) Mehta T, Strauss S, Beland D, Fortunato G, Staff I, Lee N., (2018). 'Stroke Simulation Improves Acute Stroke Management: A Systems-Based Practice Experience', *J Grad Med Educ,* 10(1):57-62.