THE CREATION OF A ROLLING IN-SITU SIMULATION PROGRAMME FOR IMPROVING TEAM WORKING AND ENHANCING PATIENT SAFETY IN THE OPERATING THEATRES OF A DISTRICT GENERAL HOSPITAL

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Background After some protocol changes, a never event and staff changes, a need was identified to educate theatre staff in situ in their representative multi-disciplinary teams.¹

Summary of education programme A series of dates throughout the year, convenient for the release of both the theatre space and staff, were identified by the theatre co-ordinator. Meetings took place between Simulation and theatre educator staff and successful dry runs of the simulation scenarios were held in the simulation lab prior to the chosen dates.

On the day the theatre nurse educators allocated representative teams to undertake the simulation. Their brief consisted of an introduction to the functions of the manikin, a hand-over typical of a real-life handover and instruction to work in their normal roles.² Our technician had set up equipment that mimicked the monitor on the anaesthetic machine but would allow us to change the observations depending upon what the learners did.

Summary of results Debrief brought out some interesting discussion points. All candidates bar one found the exercise educational and useful. The exception was a senior nurse whose role was to supervise two junior members of staff. She stated she didn’t feel involved. The most junior student ODP and nursing staff said they would not have spoken up directly to a Doctor even if they felt the Doctor was doing the wrong thing, in one scenario the anaesthetist insisting on performing a wrong sided nerve block. We discussed ways in which they could ask questions of the Doctor without directly challenging them and ways they could highlight their concerns that would ensure they would be heard.

Discussion, conclusions and recommendations The major problem with this use of simulation is the relatively small numbers of staff that can be involved in it at any one time. To address this, a second set-up has recently been devised to create a video that can be shown to a wider audience. It will have a patient safety focus and will show a series of typical distractions that can occur in any normal working day. These are focused around the critical times for the different team members, for example an anaesthetist drawing up drugs, a surgeon at a challenging part of an operation, the scrub and circulator when doing counts. This video will be used as part of an ongoing theatre staff education programme to include all members of the normal multi-disciplinary team.

REFERENCES

VIRTUAL REALITY SIMULATION IN TRAUMA AND ORTHOPAEDICS; NOT JUST LIMITED TO TRADITIONAL PROCEDURES ALONE

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Introduction Surgical training is a challenge. Over recent years there have been several well-documented factors that have reduced operating exposure. As we look to other methods of training to compensate for this, Virtual reality (VR) is increasing in popularity. Much of the previous research with VR in Orthopaedics has centred on arthroscopy and fracture fixation. Through our research, we aim to show that the benefit of VR simulation is not limited to these procedures alone but also applies to more specialist procedures. We assessed the construct validity of a VR simulator for the percutaneous insertion of a pedicle screw guidewire in the lumber spine.

Methods Twenty-four participants were recruited into this study. They consisted of medical students, postgraduate doctors and specialty doctors. They were equally divided into three groups based on previous surgical experience; novice, intermediate or expert. The simulator provided six performance metrics that were recorded for each participant. These included total score, time, fluoroscopy use, zone of wire placement, wall violation and final wire depth. Each participant performed the procedure in a set order through both left and right pedicles of lumbar vertebrae, resulting in four sets of data per person. The data was then analysed for statistical significance.

Results The results for time revealed a statistically significant difference between the three groups (p<0.001), with the novice group taking the longest time (Median 190 seconds) to complete the procedure. There was also a significant difference in fluoroscopy use between the groups, with the novice group showing the greatest use and the experienced group the lowest values at all attempts (p<0.001). Almost all participants achieved a total score of fifty, so no significant difference was seen here or with the other outcomes.

Discussion and conclusion As pedicle screw fixation is a specialist procedure, experts would most likely have had the most frequent exposure to this procedure as well as the highest exposure historically. This study therefore demonstrates the construct validity of the VR simulator for percutaneous pedicle screw fixation. VR simulation can be considered a valuable method of augmenting surgical training for more specialist procedures where exposure is already limited. This would be especially useful for trainees moving into a subspecialty field for the first time, where a procedure can be attempted with no risks to patients. The simulator can also be considered as a valid assessment tool of technical skill of a surgeon in this field.