Training safer trauma surgeons: introducing multimodal multimedia multidisciplinary distributive interactive simulation

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I.

The MSk Lab at Imperial College London is conducting cutting edge research in educational technology. The department consists of inter-disciplinary team members in a colossal collaborative effort to improve the quality of training the future generations of trauma and orthopaedic surgeons within the UK and beyond. We offer a plethora of courses. This is the first time that intramedullary femoral nailing can be safely practiced within a distributive interactive simulation scenario using actual surgical instrumentation in an immersive clinical setting with the Imperial inflatable theatre igloo and without the need of fluoroscopic radiation. The participant is put into a typical scenario and must demonstrate their technical competency while exercising non-technical skills including communication, leadership, teamwork and inter-personal skills with the rest of the team while also managing realistic distractions such managing intra-operative complications with the simulated patient, performing resuscitation, dealing with inexperienced team members and staying focussed in a noisy environment. The participant is also exposed to virtual reality dynamic hip screw surgery which the department has validated in international peer-reviewed journals. Seventeen real time objective performance metrics can help the participant to practise technical skills including the only clinically validated outcome, namely the tip-apex distance (and cut-out). Finally the participant rotates around four trauma viva stations with real radiographs and clinical cases to discuss optimal management options as well as a recap on basic sciences and biomechanical principles. This course has been running for five years successfully and has received very positive feedback from participants and the faculty.

II. Image:



III. Reference:

1 Sugand K, Akhtar K, Khatri C, Cobb J, Gupte C. Training effect of a virtual reality haptics-enabled dynamic hip screw simulator. Acta Orthop. 2015;86(6):695-701.

2. Akhtar K, Sugand K, Sperrin M, Cobb J, Standfield N, Gupte C. Training safer orthopedic surgeons. Construct validation of a virtual-reality simulator for hip fracture surgery. Acta Orthop. 2015;86(5):616-21.

IV. Biography:

Mr Sugand BSc MBBS MRCS AICSM is currently a training Trauma & Orthopaedic Specialist Trainee on the prestigious North West London rotation. He is also a PhD candidate at the MSk Lab, Imperial College London, researching into trauma simulation in the 21st century. He has published over 25 publications in international peer-reviewed journals and has presented globally. His work has also been featured in international media including the BBC. Mr Sugand is an author of four textbooks on medical education. For all his achievements, his biography has been featured in Marquis' Who's Who in the World since 2015.

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