CENTRAL LINE TRAINING MODELS: LIMITATIONS AND MODIFICATIONS

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Background: Training in simulated environments allows clinicians to practise procedures and make mistakes without risk to patients. It is important training models offer sufficient fidelity, allowing the trainee to face the same difficulties and hazards that they would in clinical practice. This is particularly true of technical skills training using part-task trainers. Current designs of central-venous cannulation simulators may not fully meet this need. Not all training models allow for the guidewire in the Seldinger technique to be over-inserted. This means guidewire loss cannot be demonstrated in many simulators, which undermines recognition of this important complication, one of the preventable and significant hazards of the procedure [1]. Our simulation centre uses Blue Phantom's Gen II Central Line Ultrasound Training Model. This simulator replicates the upper torso and neck, with a right internal jugular vein and carotid artery that can be cannulated. The simulated vessels terminate in clear tubes that run outside of the manikin's torso and contain a reservoir of fluid. Full insertion of the line is blocked due to the diameter of the reservoir tubing being too small to accommodate the J-tip of the guidewire.

Methods: In order to permit over-insertion of the guidewire, the tubing connected to the internal jugular vein has to be replaced with one of a larger diameter, sufficient to allow passage of the guidewire's J-tip. We developed a 3D printed adaptor which allows smooth passage of the wire into the larger-diameter tubing. The connection between the tube and adaptor is then made water-tight with silicone sealant. The modifications were designed using SolidWorks, Dassault Systèmes, and printed using VeroWhitePlus™ on a Object500 Connex1™ by Stratasys. Since the reservoir tubing can now accommodate guidewire retention, a further modification was required to allow for retrieval of the wire at the end of the simulation. We have achieved this by including access to the tubing secured by a screw cap.

Results: With the modifications made (Figure 1), the guidewire can now be over inserted and easily recovered by faculty at the end of the simulation. This is an important modification because it eliminates the artificial feedback trainees would receive in other models on attempting to over-insert their wire.

Conclusion: The trainee cannot now rely on the manikin preventing them from making this potentially serious mistake, so training now more accurately replicates the real-life experience. This allows for a richer training experience and a more valuable post-simulation learning conversation.

REFERENCE

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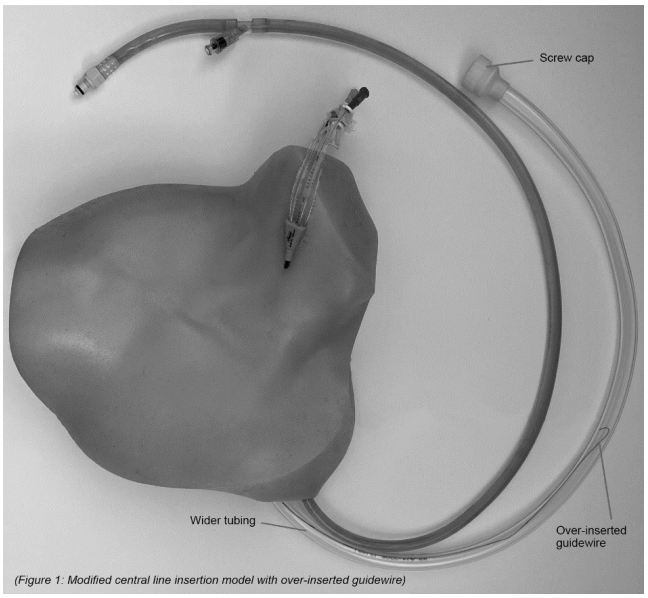

Figure 1: Modified central line insertion model with over-inserted guidewire.

PATIENT AND FAMILY INVOLVEMENT IN DESIGNING AND EVALUATING A SIMULATION PROGRAMME TO COMBAT CHILDHOOD OBESITY

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Background: 14.4% enter school reception obese [1]. The Paediatric Emergency Department (PED) offers opportunities for professionals to identify obesity and provide support to children and young people (CYP). Our PED launched an Obesity Toolkit: a medical education project created to help Make Every Contact Count, and to increase opportunistic diagnosis and sensitive communication about obesity (2). This includes teaching resources including communication scenarios and videos. Staff focus groups identified the main barrier for professionals was fear around communicating about obesity in a sensitive way. We aimed to collaborate with CYP to develop our communication simulation programme within the Toolkit. In addition, we aimed to involve families in the evaluation of the project.

Methods: We developed written patient leaflets, written and filmed communication scenarios incorporating feedback given by focus groups with Youth Empowerment Squad (YES), our local Trust CYP forum. The feedback included preferred language, which was emphasised in the debriefings of simulated sessions. The educational role-play scenario videos, which can be debriefed in teaching sessions, were filmed with a CYP taking on the role of a patient. After the release of the toolkit and accompanying simulation programme, 10 patients diagnosed as overweight or obese were randomly selected 2 to 4 months after attendance, as part of a patient experience survey. This telephone call explored parent opinions about the obesity discussion.

Results: Learning from CYP in YES helped us explore their preferred language, such as focussing on healthy living over the concept of obesity and explaining what is meant by body