

DEVELOPMENT AND VALIDATION OF SILICONE PHANTOM MODELS USED FOR PAEDIATRIC SURGICAL SIMULATION TRAINING

Giuseppe Retrosi, George Petrou, Munther Haddad, Simon Clarke
Chelsea & Westminster NHS Foundation Trust, London, UK

Aims: Few simulation models exist that are specifically designed to create a realistic clinical scenario for the paediatric surgeon. We describe the process for creation of surgical models within the framework of a paediatric surgical curriculum as well as the process of validation and feedback.

Methods: Over a 5 year period with dedicated surgical time within a single paediatric surgical consultant's job plan, a simulation program was developed. The surgical team worked closely with a professional artist expert in model development, involving procedural observation, as well as review of 3D CT and MRI scans. Expertise in silicone casting and dyeing processes as well as an anatomical illustrative background was essential. Model development time was a median of 4 months; final costings: £1500 to £14,000 per model.

Models included Gastroschisis, Inguinal hernia (open & laparoscopic procedure); malrotation volvulus, oesophageal atresia, fundoplication and appendectomy.

Face and content validity scores were obtained following 34 independent training scenarios

Results: Scores demonstrated a high level of face and content validity for inguinal hernia, and gastroschisis models. On a 5 point scale 12/13 questions were rated at a mean of 3 or greater (91%) for both gastroschisis and inguinal hernia model. 4 questions rated 4 and above focusing on usefulness in procedural training. Malrotation/ volvulus model scored median of 3 for realism but with a high level of satisfaction on situational and decision making questions.

Conclusion: Model development for training is limited in Paediatric & neonatal surgery. Further study on validation of these models and their effect on training is needed, as well as a GMC led mandate for simulation training to allow proper resource allocation to allow other UK centres to develop these tools.

