indicators of gender-based violence, suggestions on how to approach enquiring about gender-based violence and simulation scenarios incorporating gender-based violence. The scenarios were designed to include indicators of violence aforementioned in the talk to enable students to practise question asking.

Pre- and post-session questionnaires were used, and students were to rate their confidence on a scale of 1–5 of how confident they felt asking these questions and recognizing indicators of violence.

Results: Twenty-three students partook in the two sessions delivered. Pre-session data suggested that students had received minimal teaching on the indicators of violence. After completion of the sessions, there was a 57% increase in the students' confidence in recognizing a victim of violence and a 51% increase in confidence in asking whether an individual had been subject to violence. Qualitative data suggested that students valued simulation incorporating indicators of violence and opportunity to sensitively enquire if someone had experienced violence. Overall, students felt better equipped to address future scenarios where an individual may have been subject to violence.

Conclusion: Our teaching session increased the confidence of final-year medical students in recognizing the indicators of violence and their ability to sensitively enquire about any violence that an individual may be subject to.

Ethics statement: Authors confirm that all relevant ethical standards for research conduct and dissemination have been met. The submitting author confirms that relevant ethical approval was granted, if applicable.

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CONTENT, SYSTEM

A3 'I HAVE HAD AN EPIPHANY' STUDENT NURSES' REFLECTIONS ON THEIR CARBON FOOTPRINT IN SIMULATION

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Background and aim: Healthcare delivery is a major contributor to the climate crisis, producing 4.4% of net carbon global emissions today [1]. The campaign 'For a Greener NHS' launched in 2020 set a road map for the National Health Service (NHS) in the UK to reach net-zero emissions for patient care by 2040 [2]. However, to achieve this, staff must be carbon literate and start by understanding the impact of their own professional practice. It follows, therefore, that carbon literacy education must be a priority for healthcare educators. There is to date no research on educating student nurses on carbon literacy or the personal carbon footprints of their practice. Using simulation could provide an innovative solution providing a system-thinking environment that could connect carbon emissions theory to actual practice and develop carbon literacy.

The aim of the study was to explore student nurses' reflections on their carbon footprint of resources used in simulation and identify the potential role of simulation in developing carbon literacy.

Methods: This study used qualitative phenomenographic methodology, underpinned by transformational learning theory to explore student nurses' awareness and attitudes towards their carbon emissions from simulation. Ten participants were asked to log the clinical resources used during a venepuncture and cannulation simulation skills station. Carbon emissions were then calculated for each participant using the Centre for Sustainable Healthcare [3] carbon emissions calculation and were shown to students during one-to-one semi-structured interviews. Data analysis was conducted, discovering the different ways participants conceptualized their carbon footprint.

Results: Students were unaware and shocked by their carbon emissions from resource use in simulation and wanted to be better educated to enable them to make an informed choice to practise sustainably. Students highlighted the crucial role of simulation educators to educate students using simulation but to role model sustainable practice and design low resource-use simulation. Finally, students were able to connect the impact of their personal clinical practice to the global climate crisis.

Conclusion: Simulation is a powerful teaching approach to develop carbon literacy, challenging students' pre-existing knowledge, and enabling them to link their personal practice to the global climate-change crisis.

Ethics statement: The authors confirm that all relevant ethical standards for research conduct and dissemination have been met. The submitting author confirms that relevant ethical approval was granted, if applicable.

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EDUCATION

A4 DEVELOPMENT AND EVALUATION OF A CHEST CAVITY SIMULATION MODEL FOR TEACHING SURGICAL CHEST DRAIN INSERTION

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Background and aim: Surgical chest drain insertion is indicated in pneumothorax or haemothorax secondary to thoracic trauma. It is a mandatory emergency procedure that is incorporated as a part of the core medical training curriculum [1]. However, sparse training opportunities result in low clinician competency and increased risk of complications. While simulation training can offer a solution, the affordability of commercial models and hygiene and ethical implications of animal carcasses are significant limiting factors. The aim of this project is to build a reusable, high-fidelity, low-cost human chest cavity model excluding animal use for simulation-based teaching of surgical chest drain insertion.

Methods: To construct the model, plaster gauze, metal wires and u-channel rubber trims were used to build a ribcage. Soy-protein-based sausage casing was used to create the pleural layers, and the muscles and subcutaneous fat were represented with ADAMgel (Aqueous Dietary fibre Antifreeze Mix gel), a novel material with tactility and dissection sensation similar to human soft tissue [2]. Synthetic chamois leather was used to represent skin. The resulting model allowed locating the safe triangle using anatomical landmarks, blunt dissection of muscles, pleural puncturing and advancement and suturing of the chest tube. The model cost less than £130, and it could be repaired after over 20 uses with less than £15. Verbal consent on study participation was obtained from all participants who performed chest drain insertion on the model and evaluated its fidelity and educational value using an anonymized Likert scale questionnaire. All questionnaire responses were converted to numerical values for data quantification, as shown in Table 1-A4.

Table 1-A4: Median and range of questionnaire responses collected from study participants

Questionnaire item	Experienced clinicians	Inexperienced clinicians
	Median [range]	Median [range]
Model in general allowed learning of chest drainage techniques.	4 [1–5]	5 [4–5]
Model in general adequately resembles real-life patients.	4 [3–5]	3 [2–5]
If you have experience with other models: this model resembles real-life patients better than other simulation models.	4 [2–5]	3 [2–5]
Model is appropriate as simulation-based teaching material for inexperienced trainees.	4 [4–5]	4 [4–5]
I would recommend this learning tool to others.	4 [4–5]	5 [4–5]
I would use this model for teaching purposes.	4 [3–5]	N/A
Overall, I am satisfied with the training model.	4 [3–5]	5 [4–5]

Results: Sixteen senior clinicians with multiple experience on chest drain insertion and 11 junior clinicians with limited experience took part in the study. Anatomical and haptic fidelity of the model was evaluated very highly amongst experienced clinicians. Junior doctors stated increased confidence in performing the procedure, overall assessing the model as an appropriate learning tool. Twenty participants with previous training experience compared the quality of this model to other commercial or animal-based models, and 18 rated this model to be of the same or superior quality.

Conclusion: This chest cavity model is suitable for simulation training of chest drain insertion. Importantly, the model excluded the use of animals under the principle of replacing, refining and reducing animal use in research [3]. Further training opportunities that utilize this model can increase clinician competence in the procedure, which can improve clinical practice and reduce patient mortality.

Ethics statement: Authors confirm that all relevant ethical standards for research conduct and dissemination have been met. The submitting author confirms that relevant ethical approval was granted, if applicable.

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DESIGN

A5

SUSTAINABLE HEALTHCARE PLACEMENT PREPARATION: ENHANCING AHP STUDENT PREPARATION THROUGH IMMERSIVE SIMULATION AND ONLINE LEARNING

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Background and aim: In 2021, a diverse international and inter-professional team designed and implemented an intensive in-person simulation week and an interactive online learning programme to enhance student preparation for clinical placement (the Clinical Placement Enhancement Project) supported with funding from Health Education England. The simulation programme aimed for students to develop their patient-centred communication skills, assessment and therapeutic management by attending three simulation scenarios and inter-professional understanding through participation in a multi-disciplinary team (MDT) meeting. The bespoke online programme was designed with similar learning outcomes and utilized various learning materials, including 360° images of clinical environments linked to case studies.

Methods: The study design was an integrative mixed-methods feasibility study, with 29 AHP students participating in the simulation and 24 students taking part in the online arm of the study. Students from physiotherapy, occupational therapy and podiatry self-selected their preferred delivery mode for placement preparation. The evaluation explored the experiences of both domestic and international students attending the simulation and using the online learning. In addition, perspectives of the clinical educators and actor role players were explored. Data were inductively analysed using a reflexive thematic approach and integrated with the quantitative data.

Results: The key findings from the pilot study showed the value of the simulation programme in allowing students to apply their learning, particularly helping them to develop their confidence in communication, rapport building and interventions. By contrast, the online learning programme was most effective at developing students' clinical reasoning and proficiency with documentation [1]. We have built on these findings this year, to upscale the simulation programme to include all first-year AHP students (n = 130). We have reduced the number of scenarios from three to one, choosing the frailty scenario as this meets the generic outcomes for the programme and the profession-specific learning outcomes. We have retained the MDT simulation as an inter-professional simulation but modified the delivery