Surgical Assessment Unit (SAU) at an acute teaching hospital. Inadequate exposure to acute surgical conditions affected student-reported confidence and preparedness for Objective Structured Clinical Examination (OSCE). We hypothesized that simulation-based teaching during the pandemic could supplement disrupted learning [1] and improve patient safety [2].
Aim: The aim of the study was to address the quality dimension of patient safety. This Quality Improvement Project (QIP) was designed to increase student confidence by 50% in the assessment and management of acute surgical conditions, and preparedness for OSCE.
Method: The educational intervention 'Simulated SAU', consisting of scenarios based on common acute surgical presentations, was co-designed with project champion, placement lead, teaching fellows and medical education department, utilizing transformational leadership. Model for improvement approach was utilized with Plan-Do-Study-Act (PDSA) cycles. During the first PDSA cycle, intervention was delivered over 3-hour sessions in March 2021 to 12 third-year medical students, through the use of simulated patients. The second cycle encompassed integration of learning points including amended scenario and debrief timings, and improved questionnaires, delivered in April 2021 to a further 11 third-year medical students. Students completed paired 14-item pre- and post-intervention paper questionnaires consisting of 5-point Likert scale questions on confidence and preparedness. The Wilcoxon signed-rank test was used for statistical analysis, with a p-value of <0.05 considered statistically significant.
Results: During the first cycle, student-reported median confidence in assessment increased by 50% ($p = 0.01$), and in management by 66.7% ($p = 0.02$). Students felt 50% more prepared for OSCE assessment ($p = 0.02$). During second cycle, median confidence in assessment increased by 100% ($p = 0.003$), in management by 100% ($p = 0.004$), and students felt 50% more prepared for OSCE assessment ($p = 0.015$). 100% of students felt simulated SAU is useful and future sessions would further enhance surgical learning.
Implications for practice: The QIP achieved its aim to increase student confidence with statistically significant differences, through a high-fidelity simulation intervention. Through QI methodology and leadership for improvement, this QIP has successfully bridged the educational gap resulting from the pandemic, with emphasis on delivering safe patient care. Next steps encompass integration of learning points over the following PDSA cycle, engagement of new staff and resource sharing for future implementation and sustainability. Simulated SAU intervention is low-cost, requires minimal staff and is simple to deliver, hence has the potential to become integrated within medical education across numerous educational settings and enhance patient safety.

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160 APPLYING HUMAN FACTORS PRACTICES AND SIMULATION TO DEVELOP SYSTEMS AND PROCESSES FOR A PANDEMIC VACCINE SERVICE

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Background: The COVID-19 vaccine hubs required rapid implantation. While organizations had plans as part of the emergency resilience response to the community, there were particular challenges for setting up and running vaccine hubs for COVID-19 that Human Factors and Ergonomic practices could help to identify and address prior to opening as a vaccine hub.
Aims: The aim of the study was to assist with understanding the abilities of vaccinators and design of processes for the vaccine service at Dartford and Gravesham NHS Trust.
Method: Simulation, observation, semi-structured interviews and Hierarchical Task Analysis (HTA) were used to understand the complexity of the vaccinator role and potential challenges for the implementation of the vaccine service. This was then used in identifying an area that could meet the capacity requirements identified and to help design the process and flow through the vaccine hub.
Results: The work undertaken was used to identify and design the processes required to deliver the vaccine service. This in turn helped to identify the space required and, due to changes in practice following potential reactions to the Pfizer BioNTech vaccine [1], develop the process within the identified footprint. The process developed went into operation in late December and ran largely as designed throughout its operating life delivering first and second dose vaccines to trust staff and the wider keyworker community while community sites were identified and developed for mass vaccine hubs.
Implications for practice: Using simulation and HFE processes as part of a collaborative process with staff trained with these skills can help to design safer, more effective processes in healthcare.

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103 UNPICKING THE MECHANISMS USED IN SIMULATION-BASED EDUCATION THAT SUPPORT UNDERGRADUATE STUDENTS' DEVELOPMENT OF THEIR COLLABORATIVE PRACTICE SKILLS

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Background: Annually, approximately 80 undergraduate physiotherapy and occupational therapy students participate in simulation-based learning, as part of a second-year module. The experience provides opportunities for students to achieve core module outcomes, such as developing communication skills, inter-professional practice and clinical reasoning. The simulation is supported by a small team of academic faculty and a professional actor, all trained in simulation and debriefing. The students are required to assess an older person at home as part of an emergency response team. They work in groups of up to eight students, are pre-briefed and given a profession-specific written brief of their role in the scenario. A two-pronged approach to debriefing is used; the origami approach, utilizes pauses to capture teachable moments [1], and the advocacy-inquiry approach, used to reflect on the experience [2]. The simulation itself is not assessed; the students write a reflective assignment through the simulation lens, discussing the concepts of effective collaborative practice.

Aim: The aim of the study was to identify the mechanisms used in simulation-based education that support development of collaborative practice skills of undergraduate students.
Method: The simulation-based learning scenario was iteratively developed, delivered and evaluated over 3 years. Staff reflection and content analysis of 3 years of feedback from anonymous evaluation questionnaires, and a sample of student assignments, were used to identify aspects of simulation delivery that supported students' development of collaborative practice.
Results: Although students consistently report anxiety about participating in the simulation, they also identify it as one of the most intense but helpful learning experiences of their on-campus degree programme. The use of trained, experienced actors, indistinguishable from service users maximizes student engagement. Effective pre-briefing reduces student anxiety and provides an opportunity to add complexity via the written brief. The student roles as observers and/or participants (in a familiar role) improve students' experience and support students with diverse needs. Assigning clear staff roles improves delivery and cost-effectiveness. Combining the two approaches to debriefing students was necessary to allow reflection-in-action and -on-action. Thorough debriefing is essential, challenging and requires planning and practice.
Implications for practice: Simulation is an effective pre-qualifying education tool. Adequate pre-briefing, effective debriefing styles, and clear assignment of staff roles aid in effective delivery. Simulation scenarios need to be carefully constructed and delivered to ensure that all students remain within their optimal learning zone and to support students with diverse needs.

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41 INTRODUCTION OF EMERGENCY DEPARTMENT *IN SITU* SIMULATION

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10.54531/AEUM3397

Background: *In situ* simulation (ISS) is an effective way to deliver inter-professional education in the Emergency Department (ED) [1]. Since October 2020, we have been running regular inter-professional ISS in both EDs in Mid-Yorkshire NHS Trust. We used personal experience, systems and processes from other EDs in West Yorkshire [2] and the literature to assist with initiating this.
Aim: The aim of this study was to describe the process to set up an ED ISS programme and share our challenges and successes.
Method: We run a variety of cases including paediatric and adult on a broad topic range (anything that can be seen in the ED), e.g. medical, surgical, trauma, psychiatric and maternity emergencies. We prepare the case beforehand and ensure that we have the appropriate staff and equipment. A vital aspect to ISS is ensuring the ED is safe. Embedding the attitude that this is 'just another patient' has been key. We use a low-fidelity manikin and a simulated monitor app. All participants are briefed, everything is in real-time to closely simulate real life. After the simulation, a debrief takes place. Feedback is sought from all and a certificate is provided. From 14 October 2020 to 5 May 2021, we have run 39 ISS with 138 inter-professional ED participants.
Results: Figure 1 demonstrates feedback given by these participants (largely positive).

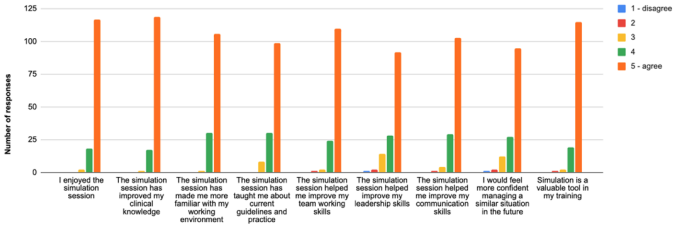

Figure 1: Participant feedback

Implication for practice: Although challenges exist, it is achievable and effective to run an ISS programme in a busy ED. While this was set up with the education of staff as the primary objective, it has become clear that ISS is also important in identifying system problems, testing new pathways and providing an educational response to incidents in the department.

Aspects of our programme that have worked for us include:

- Picking a regular day weekly (early morning best for ED).
- Having an inter-professional debriefing team helps to engage all professions.
- Ensuring senior departmental support.
- Build slowly to more complex simulations.

Challenges we have found are:

- Changing culture/attitudes – most support simulation once they have taken part/seen it happen regularly – persevere with it!
- The ED is busy – we cannot change this but can be flexible.
- Too many observers put the learners off and reduce learning. We have reduced observer numbers and have a sim 'uniform'.
- Some participants have difficulty engaging with the manikin/low-grade technology – a good briefing can help.

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32 USING A SIMULATION ENVIRONMENT TO ASSESS THE USABILITY OF A NOVEL MEDICAL DEVICE DURING THE COVID-19 PANDEMIC

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10.54531/VQTW1346

Background: It was a recognized challenge of lack of ventilators needed to face COVID-19 worldwide. Although ventilators are sparse, self-inflating manual resuscitators are widely available in-hospital services, providing a rapid response to respiratory depression. Based on this, a device (PNEUMA) [1] was designed to be a temporary solution for emergency use, allowing positive pressure ventilation through a standard self-inflating manual resuscitator, without the need for healthcare