**Abstracts**

**RCEM Lightning Papers**

**1042** IMPROVING THE ACCURACY OF FRONTLINE CLINICIANS IN DETECTING SARS-COV-2 ON CHEST X-RAYS USING A BESPOKE VIRTUAL TRAINING PLATFORM


Aims/Objectives/Background The non-specific symptoms of COVID-19 and the lack of a highly-sensitive point-of-care test make it difficult to reliably detect and diagnose in acute care settings. The early identification of COVID-19 using chest X-rays (CXR) in the Emergency Department (ED) is a crucial skill for frontline clinicians. We wanted to measure the accuracy of ED clinicians in detecting COVID-19 CXR changes and assess for improvement using an adaptive online learning module.

Methods/Design ED clinicians working across five hospitals in the Thames Valley Emergency medicine Research Network (TaVERN) were recruited over six months. Participants’ reporting performance was assessed by interpreting 30 anonymised CXR via the Report and Image Quality Control (RAIQC) online platform, using an image bank which contained both COVID-19 and non-COVID-19 pathological findings. Participants subsequently completed an online training module, and repeated the assessment using different image sets. Diagnostic accuracy and speed of CXR reporting was assessed both before and after training, with results compared against radiologists. The ground truth for each case was established by consensus of three thoracic radiologists. RT-PCR results were reviewed for each case to ensure that all the COVID-19 cases were positive and all COVID-19 cases were negative.

Results/Conclusions ED clinicians working in emergency departments across five hospitals in the Thames Valley Emergency Medicine Research Network (TaVERN) were recruited over a six month period. 112 clinicians completed the initial assessment. 36 clinicians completed all three training components. The initial mean accuracy for clinicians in identifying COVID-19 on chest X-rays was 43%. The mean accuracy was 57% amongst clinicians who completed all three online training components. These clinician showed improved reporting speed with mean time reduction to CXR interpretation from 69 to 50 seconds.

ED clinicians do not perform well at detecting COVID-19 CXR related changes on CXR, but accuracy and speed can be improved by online training.

**1078** THE PROGNOSTIC ACCURACY OF NEUTROPHIL-LYMPHOCYTE RATIO IN COVID-19 PATIENTS

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Aims/Objectives/Background COVID-19 is a newly emerging pandemic viral disease. Multiple management guidelines were introduced; nevertheless, their efficacy is still under debate. Thus, the presences of prognostic factors are essential for predicting which patients will need more invasive treatments.

The study aims to investigate the prognostic accuracy of neutrophil-lymphocyte ratio in COVID-19 infection.

Methods/Design This is a prospective study done in Al-Ain Hospital in the United Arab Emirates. All the Covid-19 patients presenting to the hospital were enrolled over one month from 20/3 to 20/4/2020. We gathered information about their age, sex, mode of transmission and calculated their Neutrophils/Lymphocytes ratio (NLR) from the first complete blood picture on admission. We divided the patients into two groups: those aged 50 years and above and those aged less than 50 years. We chose the best NLR cutoff value based on the Youden index and receiver operating characteristic (ROC) curve analysis. The target endpoint was the presence or absence of intensive care unit (ICU) admission.
Results/Conclusions The study revealed that 48 patients (14%) needed ICU admission, while 296 patients (86%) were admitted to a ward or quarantine facilities. When the patient’s age was > 50, and NLR was ≥ 3.10, it showed a sensitivity of 95.24% and a specificity of 92.86% for predicting the need for ICU admission. When NLR was ≥ 4.21, and the patient’s age was < 50, the sensitivity and specificity were 70.3% and 93.7%, respectively.

NLR proved to be highly specific and sensitive in helping to identify patients who need more invasive care among people over 50 years of age with COVID-19. Additionally, it can be used as a ruling out gadget for low-risk patients among people under 50 years old.

1148 HARNESSING A STUDENT NETWORK TO SUPPORT VALIDATION OF THE PATIENT REPORTED EXPERIENCE MEASURE FOR OVER 65S ATTENDING THE ED (PREM-ED 65+): INITIAL FINDINGS FROM A NOVEL COLLABORATIVE PROJECT

Aims/Objectives/Background PREM-ED 65+ is an 83-item patient experience questionnaire for over-65s attending the ED. The final development stage will confirm psychometric properties in the real-world. Following recent successes of trainee-led collaborative studies, intercalated Urgent/Emergency Care students (University of Plymouth) were invited to participate in this study as student site investigators (SSIs).

We aim to outline this collaborative project and report challenges and successes encountered so far.

Methods/Design A cross-sectional study was designed to administer PREM-ED 65+ to eligible patients upon discharge. Students were invited to review the protocol/SSI role at outset. Senior faculty agreed to their participation; timetable conflicts were avoided. NHS and University ethics were obtained.

Thirty-two students within 19 EDs volunteered to become SSIs (64% of the cohort). All underwent training. Existing mentors were co-recruited as site PIs. Commencement—planned January 2021—was delayed until Mid-May due to administrative reasons.

Results Data collection is ongoing. Currently, twenty-two SSIs across 16 sites have recruited 272 participants in five weeks (median = 16 patients/site [R3—45]; 10 accruals/SSI (R2—20)). Completion of all 83-items is near-perfect (97.8%). Sixty-four (23.5%) participants consented to a retest survey.

Average respondent age is 77 years (R65—100) with more females (58.6%). No differences in arrival mode or complaint type has been observed. Participant LOS is commonly >4 hours (51.3%) with very few treated within an hour (3.3%).

Per-item analysis will commence once the minimum sample (300) is achieved. Redundant items will be excluded; structural and criterion validity, and test-retest reliability will be assessed for remaining items.

Student feedback will be sought to evaluate the SSI role.

Conclusions The student network has made an essential contribution. The efficiency of the collaborative model has mitigated significant commencement delay. Concerns such as conflicts with the academic programme have been allayed through involving students and faculty in design, and proactively arranging supervision and communication.