to worse outcomes for patients presenting with major trauma. There has been no previous national evaluation of ‘lockdown’ measures impact on the characteristics, treatment pathways and outcomes of trauma patients in England.

We aimed to assess the impact of successive lockdowns on the volume, demographics, injury mechanism, severity, treatment and outcomes of major trauma in England.

Method and Design

Demographic characteristics and clinical pathways of TARN eligible patients in the first lockdown (24th March to 3rd July 2020 inclusive) and second lockdown (1st November 2020 to 16th May 2021 inclusive) were compared to equivalent pre-COVID-19 periods in 2018–2019.

A segmented regression model predicting the weekly risk adjusted survival was estimated and a discontinuity in the gradient (trend) or intercept (level) of the fitted model was tested for at the weekly time point of implementation of each lockdown.

Results and Conclusion

The first ‘lockdown’ had a larger associated reduction in total trauma volume (21%) compared to the pre-COVID period than the second ‘lockdown’ (6.7%). Trauma volume increased for those 65 and over (3%) and 85 and over (3.3%) during the second ‘lockdown’.

There was a reduction in likelihood of survival (1.71; 95% CI: -2.76 to -0.66) associated with the immediate introduction of the first ‘lockdown’. However, this was followed by a trend of improving survival (0.25; 95% CI: 0.14 to 0.35) and likelihood of survival returned to pre-pandemic levels by the end of the first ‘lockdown’ period.

Future research is needed understand the initial reduction in likelihood of survival after major trauma observed with the implementation of the first ‘lockdown’ to prevent this occurring if measures re-introduced.

### Abstracts

#### 1716 WHY DO EMERGENCY DEPARTMENT CLINICIANS MISS ACUTE AORTIC SYNDROME? A CASE SERIES AND DESCRIPTIVE ANALYSIS

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Aims, Objectives and Background

Acute aortic syndrome (AAS) is a rare, life-threatening emergency affecting approximately 4000 people per year in the UK, has an ED misdiagnosis rate as high as 38% and around one quarter of cases are not diagnosed until 24 hours after presenting to the ED.

It presents in many atypical ways, posing a significant diagnostic conundrum for the emergency department (ED) clinician and risk of litigation. We sought to understand the reasons why AAS was missed in ED by conducting a case series review of patients with misidentified AAS presenting to three UK EDs over a 10-year period.

Method and Design

We identified missed diagnoses of AAS using searches of ED morbidity and mortality records, post-mortem reports, complaints, Electronic Patient Records (EPRs) and Radiology records from three UK EDs.

Results and Conclusion

Between 1.1.2011–31.12.2020, 43 cases were identified across three EDs (1.4 cases/yr/dept).

The most common diagnosis was Type A aortic dissection (22; 51%).

The most common incorrect presumed diagnoses made were acute coronary syndrome (ACS, 12; 28%), pulmonary embolism (PE, 5; 12%) and ‘non-specific chest pain’ (5; 12%).

In 31 of the 43 cases (72%) there was no evidence from the notes of consideration of AAS in the differential diagnosis. In 10 of the 43 cases (23%), AAS was clearly considered, but the clinician appears to have been falsely reassured by clinical findings, normal chest x-ray, or atypical or resolved symptoms.

Only 63% (27/43) presented with chest pain and 16% (7/43) had no pain. 65% (28/43) documented sudden onset of symptoms.

This case series reinforces the RCEM/RCR recommendation that ‘All clinicians working in the emergency department should be made aware of the difficulties in excluding the diagnosis of thoracic aortic dissection.’ Further research is required to improve ED diagnostic pathways for this group of patients.

#### 1490 INTUBATION SUCCESS IN PREHOSPITAL EMERGENCY ANAESTHESIA: A RETROSPECTIVE OBSERVATIONAL ANALYSIS OF THE INTER-CHANGEABLE OPERATOR MODEL (ICOM)

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Aims, Objectives and Background

Pre-Hospital emergency anaesthesia (PHEA) is a complex procedure with significant risks. First-pass intubation success (FPS) is recommended as a quality indicator in pre-hospital advanced airway management. Previous data demonstrating significantly lower FPS by non-physicians does not distinguish between non-physicians operating in isolation or within physician teams. In several UK HEMS, the role of the intubating provider is interchangeable between the physician and critical care paramedic – termed the Inter-Changeable Operator Model (ICOM). The objectives of this study were to compare first-pass intubation success rate between physicians and critical care paramedics (CCP) in a large regional, multi-organisational dataset of trauma PHEA patients, and to report the application of the ICOM.

Method and Design

A retrospective observational study of consecutive trauma patients ≥16 years old who underwent PHEA at two different ICOM Helicopter Emergency Medical Services in the East of England, 2015–2020. Data are presented as number (percentage) and median [inter-quartile range]. Fisher’s exact test was used to compare proportions, reported as odds ratio (OR) (95% confidence interval, 95% CI), p-value.

Results and Conclusion

In the study period, 13,654 patients were attended. 674 (4.9%) trauma patients ≥16 years old who underwent PHEA were included in the final analysis: the median age was 44 [28–63] years old, and 502 (74.5%) were male. There was no significant difference in the FPS rate between physicians and CCPs – 90.2% and 87.4% respectively, OR 1.3 (95%CI 0.7–2.5), p=0.38. The cumulative first, second, third, and fourth-pass intubation success rates were 89.6%, 98.7%, 99.7%, and 100%. Patients who had a physician-operated initial intubation attempt weighed more and had a higher heart rate, compared to those who had a CCP-operated initial attempt.
In an ICOM setting, we demonstrated 100% intubation success in adult trauma patients undergoing PHEA. There was no significant difference in first-pass intubation success between physicians and CCPs.

A MULTI-CENTRE PROSPECTIVE OBSERVATIONAL STUDY TO EVALUATE HEALTHCARE IMPACTS OF E-SCOOTERS ON EMERGENCY DEPARTMENTS

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Aims, Objectives and Background This study aims to report the prevalence of E-scooter related injuries, delineate the impact of rental schemes on Emergency Departments (ED) and report associated ED resource use and cost.

E-scooters have risen in popularity since the expansion of rental schemes and there is rising concern over the healthcare impact of faster illegal private E-scooters. Current literature is limited on the healthcare related impact of E-scooters by retrospective design and focus on specific injury patterns (e.g. orthopaedic or maxillofacial).

This study presents prospective data on E-scooter related injury presenting to the ED, comparing sites with and without rental schemes.

Method and Design A prospective observational study for four weeks of recruitment across twenty EDs across the United Kingdom (12 with rental schemes and 8 without). All patients presenting to ED with an E-scooter associated injury were identified.

A prospective observational design was chosen to more accurately collect data on E-scooter injury patterns and behaviours. Sites with and without rental schemes were chosen to compare the impact of rental schemes.

Results and Conclusion E-scooter related injury was found in 250 ED patients. Fractures were diagnosed in 30.4% of patients and 19.4% sustained a head injury (4.2% classified as severe traumatic brain injury). Only 6.4% of riders were helmeted and 19.8% were intoxicated with alcohol. Mean unadjusted ED costs per patient were £297.31. The mean Injury Severity Score (ISS) was 2.8 in rental E-scooter incidents and 3.0 in private E-scooter incidents. From multiple linear regression modelling, helmet use, alcohol use and private or rental E-scooters were not predictive of ISS.

In conclusion, E-scooter riders are vulnerable to injuries of varying severity. Low rates of helmet use and high prevalence of alcohol intoxication suggest a need for targeted public health interventions, but improved data collection is required. Health service costs should be considered when reviewing the suitability of rental schemes.