(%): 75(69.7–78.5)) and 13 LD-Controls (10M/3F, age: 66 (62–72), FEV₁%pred(%): 60(52.8–74.5), FEV%FVC(%): 52 (45–57)) were studied. At least one of the respiratory depression indicators was detected in all 20 participants with OUD (Table1). Overall, there was a greater frequency of significant respiratory depression in both OUD groups compared to controls, most commonly ETCO₂>6.5kPa (p=0.021;Table1). NRDI was significantly higher in LD-Controls than OUD-LD (217(43.7–504.5) min⁻¹ and 148.5 (35–172.6) min⁻¹, respectively (p<0.01)), but there was no significant difference between OUD and HC (87.6(51.7–115.3) min⁻¹ and 76.9 (52.8–164.2) min⁻¹, respectively (p=0.7)).

Conclusions Respiratory depression is frequently present in OUD patients with comorbid COPD and significantly more severe than in opioid-naïve controls. Further studies are required to determine the association between respiratory depression and overdose risk.

Please refer to page A193 for declarations of interest related to this abstract.

COVID-19: clinical features and risk

P86

CHARACTERISING ANOSMIA IN HOSPITALISED PATIENTS WITH COVID-19

¹KF Florman, ¹M Jayne, ¹A Berezowska, ¹E Abouelela, ²J Hudson, ¹T Al-Mayhany. ¹Royal Free Hospital, London, UK; ²The London School of Hygiene and Tropical Medicine, London, UK

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Introduction Anosmia is one of the core symptoms of COVID-19, but its significance in hospitalised patients has not been extensively studied.

Aims Our aim was to characterise anosmia experienced by hospitalised COVID-19 patients, assessing whether subjective reporting correlated with examination findings which were quantified using our novel scoring system. We also looked to explore possible association between severity of anosmia and clinical outcomes, as well as whether severity correlated with comorbidities.

Method Over a two-month period we combined reported history of anosmia with olfactory nerve examination when assessing patients hospitalised with COVID-19. Examination included scoring patients on their ability to recognise distinctive smells of coffee, vinegar, clove, vanilla and mint from disguised bottles. A numerical grading system was established scoring severity of anosmia for each smell, with a total score calculated for each patient (table 1). Co-morbidities of all patients were noted and all were followed up at discharge to monitor whether they were admitted to intensive care (ICU) and whether they developed complications of COVID-19.

Results 46 patients were included, 33 (72%) of whom were male. Examinations were either performed at admission in the Emergency Department or on medical wards shortly afterwards. 16 (35%) patients were later admitted to intensive care. Mean length of stay was 21 days (SD 18.8). Coffee was the smell most often identified with a mean score of 1.09 (SD 1.13). Vinegar was least identified with a mean score of 1.8 (SD 0.89). There was a significant difference in patients' reporting of anosmia symptoms, compared to our objective assessment. 96% of patients (30 of 31) who reported no anosmia actually had objective evidence of anosmia on

Abstract P86 Table 1 Anosmia scoring system developed

Score for each smell	Meaning
0	Able to identify the smell correctly
1	Able to identify the smell but it doesn't smell right
2	Unable to identify the smell
3	Total anosmia
Total scores per patient	Definition
0–4	Mild anosmia
5–10	Moderate anosmia
11–15	Severe anosmia

examination (test of proportion, p<0.001). Severity of anosmia was not significantly associated with upper respiratory tract symptoms, ICU admission or development of complications from COVID-19. There was no correlation between severity of anosmia and presence of pre-existing comorbidities. **Conclusion** A significant proportion of patients studied were not aware they had anosmia. This has implications for pandemic management going forward when people are required to self-report this symptom and suggests potential benefit in formal examination of the olfactory nerve.

P87

CLINICAL CHARACTERISTICS OF COVID-19 PATIENTS WITH PULMONARY EMBOLISM IN 1ST AND 2ND WAVES

¹AJ Chung, ²MN Dang, ¹T Niaz, ¹P Palchaudhuri. ¹Lewisham and Greenwich NHS Trust, London, UK; ²Imperial College London, London, UK

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Introduction and Objectives Multiple studies have demonstrated increased risk of pulmonary embolism (PE) in COVID-19. Our study at a major NHS Trust examined the clinical characteristics, attributes and outcomes of PE in COVID-19, which have infrequently been explored in literature.

Methods We performed a retrospective cohort study of COVID-19 patients with PE diagnosed on CT pulmonary angiogram (CTPA) over 2 months in 1st and 2nd waves (April 2020 and January 2021). Data collected from electronic health and imaging records included patient demographics, D-dimers, oxygen requirements, clinical outcomes, thromboprophylaxis/treatment and PE attributes on CTPA.

Results We identified 76 COVID-19 patients with PE (mean age 62.2 years, 69.7% male, 40.8% Caucasian). Patients experienced prolonged periods of COVID-19 symptoms prior to PE diagnosis - 19.6 day symptoms in 1st wave (n = 16, 21.9%) compared to 15.2 days in 2nd wave (n = 57, 78.1%). Average D-dimer was highly elevated (mean = 11576 ng/mL). 43 (56.5%) patients had high oxygen requirements - 21 (27.6%) required ≥10 litres/min via mask, 13 (17.1%) required non-invasive ventilation and 9 (11.8%) were intubated and ventilated. 22 patients (28.9%) were admitted to intensive care and 11 patients (14.5%) died. On admission, 48 patients (63.2%) were started on treatment dose enoxaparin (high PE suspicion) and 12 (15.8%) had intermediate (prophylactic) dose enoxaparin. PEs were largely treated with 3–6 months of rivaroxaban (n = 43, 56.6%) or apixaban (n = 7, 9.2%). 65.5% (n = 49) of patients had bilateral PEs; largest sizes being segmental (n = 32, 42.1%), subsegmental (n = 17, 22.4%), lobar (n = 16, 21.1%), main pulmonary artery (n = 5, 6.6%) and saddle (n = 5, 6.6%). 15 patients (19.7%) had evidence of right heart strain on CTPA.

Conclusions Our study suggests that PE in COVID-19 is more common in males and in those with COVID symptoms greater than 2 weeks, high oxygen requirements and highly elevated D-dimers. There should be a low threshold for investigating such patients for PE. Moreover, we found COVID-19 patients with PE have high likelihood of having a bilateral pulmonary distribution with right heart strain.

P88 INITIAL ROUTINE LABORATORY TESTS CAN BE USED TO PREDICT CLINICAL COURSE IN PATIENTS HOSPITALISED WITH COVID-19

RL Young, KV Mullins, A Ainley. *Barking, Havering and Redbridge University Hospitals NHS Trust, Romford, Essex, UK*

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Background Previous work has related demographic and clinical characteristics to clinical course and outcome of patients hospitalised with COVID-19.¹ We sought to evaluate if initial routine laboratory test results could be utilised to predict length of inpatient stay (LOS), need for non-invasive (NIV)/invasive mechanical ventilation (IMV) and admission to an intensive care unit (ICU). We also sought to establish if C-reactive protein levels related to radiographic disease severity.

Methods A retrospective analysis was carried out on a cohort of 567 patients with a laboratory confirmed diagnosis of COVID-19 admitted during the second wave of the pandemic between April 2020 and May 2021 including descriptive statistics and multivariate and regression analysis. Radiological severity was based upon previously proposed scoring systems.²

Results Of the 567 patients included, 342 (60%) were male, mean age 61 years, 318 (56%) were Caucasian, 143 (25%) Asian and 35 (6%) Black. Raised admission d-dimer and urea levels correlated with longer LOS ($r=0.17$ and 0.16 respectively, $p<0.01$). Rising C-reactive protein and d-dimer correlated with increased risk of requirement for admission to ICU ($r=0.27$ and 0.19 respectively, $p<0.001$), need for NIV (Pearson's correlation 0.26 and 0.15 respectively, $P<0.01$) and progression to IMV ($r=0.15$ and 0.14 , $p<0.05$). A correlation between initial routine blood results and death was not detected. C-reactive protein correlated with radiographic disease severity ($r=0.32$, $p<0.001$).

Conclusions Abnormalities in initial laboratory test results may be utilised to risk stratify patients presenting to secondary and tertiary care with COVID-19, may help predict clinical course and in doing so facilitate more efficient and streamlined delivery of care and resource utilisation with likely significant impact on patient outcomes.

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P89 VITAMIN D DEFICIENCY INCREASES SUSCEPTIBILITY TO COVID-19 INFECTION

S Kumar, R Ragatha, S Waring, G Gamtkitsulashvili, A D'Souza, M Mahenthiran, S Tan, M Parsons, S Visuvanathan, A Sefton, U Ekeowa, P Russell. *The Princess Alexandra Hospital, Harlow, Essex, UK*

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Background Vitamin D plays a vital part in modulating the immune system, with Vitamin D deficiency leading to increased susceptibility to infection.¹ There is some evidence to suggest Vitamin D may play a protective role in the prevention of COVID-19 infection in hospitalised patients,² but the topic remains controversial. Our study aims to investigate if low Vitamin D levels correlate with increased risk of COVID-19 infection, thereby representing a modifiable risk factor for COVID-19 infection.

Method A retrospective observational study was conducted on 3198 health care workers of a Greater London District General Hospital, who had undergone testing for 25-OH Vitamin D levels and COVID-19 antibody in June 2020. In accordance with NICE guidelines, Vitamin D deficiency was defined as less than 25 nmol/L, insufficiency as 25–50 nmol/L, and those with levels over 50 nmol/L were used as control comparisons. Evidence of previous SARS-CoV-2 infection was assessed by detection of SARS-CoV-2 IgG antibodies. Regression analysis was performed to determine independent significance, accounting for age and gender.

Results 3191 participants were included in this study, with age ranging from 19–78 years (mean 42.9) of which 78.2% were female. Both age and gender were not independently associated with positive SARS-CoV-2 IgG antibodies. 1997 (62.6%) participants had Vitamin D levels within the normal range, 899 (28.2%) participants had insufficient levels and 302 (9.4%) had Vitamin D deficiency. Both Vitamin D deficiency (OR 1.61, $p=0.002$) and insufficiency (OR 1.33, $p=0.006$) independently correlated with significantly increased incidence of positive COVID-19 antibodies than personnel with normal Vitamin D levels.

Conclusions We report the largest single-centre study investigating the impact of low Vitamin D levels within healthcare workers to date. Significant correlation between low levels of Vitamin D and previous COVID-19 infection was identified. Oral Vitamin D supplementation to maintain levels >50 nmol/L may play a protective role against COVID-19. Larger studies are needed to investigate the role of Vitamin D supplementation in healthcare workers for further COVID-19 waves.

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P90 USE OF PROCALCITONIN TO PREDICT MORBIDITY AND MORTALITY IN COVID-19

S Kumar, A D'Souza, G Gamtkitsulashvili, S Waring, Y Narayan, G Collins, O Taylor, S Jiwani, K Patrick, A Sethuraman, S Naik, S Kuckreja, R Ragatha, M Anwar, U Ekeowa, P Russell. *The Princess Alexandra Hospital, Harlow, Essex, UK*

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Background Procalcitonin (PCT) is an established biomarker of acute bacterial infection, and elevated levels of PCT may correlate with increased severity in patients with COVID-19 infection.¹ Here, we assess if initial PCT levels are a viable prognostic marker to predict significant morbidity and mortality outcomes for hospitalised patients admitted due to COVID-19 infection.

Method We performed retrospective analysis of initial blood results taken from 1189 patients with RT-PCR positive COVID-19 infection presenting to our District General