

The Royal College of
Emergency Medicine



RCEM COVID-19 CPD Journal club Weekly top 5 papers

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the RCEM COVID-19 CPD team

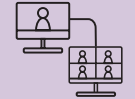
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This week's top 5 flash update has been taken over by the Academic Emergency Department in Plymouth, in collaboration with the Academic Department of Military Emergency Medicine.

The academic emergency department in Plymouth has a growing team of enthusiastic clinical academics, which has delivered a range of recent studies; topics have included the management of pain, major trauma, chest pain and patient reported outcome measures in older patients. We have excellent links and collaborations with Plymouth University and other emergency departments in the South West, and are proud contributors to SWEAT (the South West Emergency Academic Team).

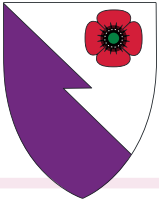
The Academic Department of Military Emergency Medicine (ADMEM) is based at the Royal Centre for Defence Medicine in Birmingham. We concentrate on answering research questions relating to the military population, and are currently undertaking research to define the optimal resuscitation strategy in the most severely injured patients, as well as considering other challenges such as CBRN and tropical disease.

There were 929 papers this week, and the Plymouth team have gone through them all to find the best ones for you to read! These are the quick and dirty summaries, but all of the material and links are online, so please do check these articles out in full if you are interested.

As in previous weeks, these papers have been split into 3 categories that will allow you to focus on the papers that are most vital to your practice

- Worth a peek: interesting, but not yet ready for prime time
- Head Turner: new concepts
- Game Changer: this paper should change practice





COVID-19 and the cardiovascular system: a review of current data, summary of best practices, outline of controversies, and illustrative case reports by Prasad et al ¹

Topic: Review of all topics related to the cardiovascular system and COVID-19

Impact rating: Head Turner

Scout: Laura Cottey and Jason Smith

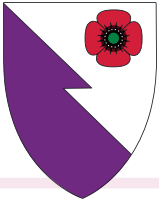


This review article, published in the American Heart Journal, essentially summarises everything you need to know about COVID-19 and the cardiovascular system. COVID-19 directly affects multiple aspects of the cardiovascular system so if you're looking for some shortcuts or key takeaways, we would recommend a quick look at Table 1, which neatly summarises the current evidence and literature.

Topics covered include the role of established cardiovascular disease and comorbidities in clinical course severity, the common finding of cardiac biomarker elevation in hospitalised COVID-19 patients, an assessment of the controversy surrounding the role of ACE inhibitors and ARBs and electrophysiological manifestations. If you have more time, each item is covered in more detail with some illustrative case examples in the text.



The authors also take the opportunity to address some aspects of HCW safety; the statements on non-invasive imaging and cardiopulmonary resuscitation have particularly relevant crossover to EM colleagues.



Psychological distress, coping behaviours, and preferences for support among New York healthcare workers during the COVID-19 pandemic by Shechter et al²

Topic: Healthcare worker mental health

Rating: Head turner

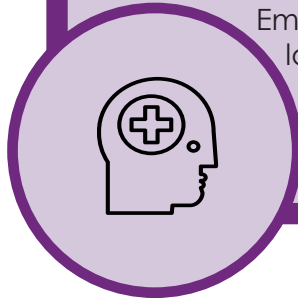
Scout: Felix Wood

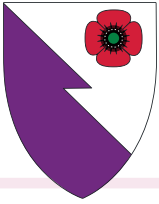


The mental strain on healthcare workers has been a focus of media attention and concern for Royal Colleges during the pandemic. This cross-sectional web survey of healthcare professionals in a large New York City hospital quantifies that strain during the three weeks from 9 April, the peak of COVID-19 admissions in New York. 57% of the 657 respondents reported symptoms of acute stress with concerns about transmitting COVID-19 to family members and a perceived lack of control being listed as key stressors.

Despite this, 61% reported an increased sense of meaning/purpose. Of the reported coping strategies, 59% stated that physical activity or exercise was their preferred method. There was an appetite for online and counsellor-led support to be offered with one third stating they were interested in this.

The authors discuss the long-term impact of the 2003 SARS outbreak on emotional wellbeing and encourage a proactive approach in order to minimise this after COVID-19. As Emergency Departments settle into the new normal, this is a timely reminder to look after ourselves and each other, particularly nursing staff, who had higher rates of reported stress than physicians amongst the respondents in this study. We await the results of the UK CERA study which will give us some local context to this issue.





COVID-19 in children and adolescents in Europe: a multinational, multicentre cohort study by Göttinger et al ³

Topic: Epidemiology

Impact rating: Worth a peek

Scout: Robert James and Felix Wood



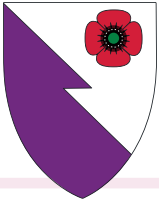
Here, Göttinger et al. collaborate via an existing research network (originally designed to support research into paediatric tuberculosis) to report this large, international cohort study, examining children from 21 European countries infected with COVID-19.

The study ran from 1 April - 24 April 2020. They report epidemiological data on 582 children aged under 18 who had PCR-proven COVID-19. The median age of patients was five years with a range from three days to 18 years. Nearly 30% of all patients were under 12 months. Of these patients, 363 (62%) were admitted to hospital with 48 (8%), or 13% of hospital admissions, requiring ICU care.

145 (25%) had a pre-existing medical condition. Interestingly only 369 (65%) patients had a fever and approximately 25% had no respiratory symptoms or signs. 507 (87%) patients required no respiratory support, 75 (13%) required oxygen therapy with 42 (7%) of these going on to require either non-invasive or invasive ventilation. 19 (3%) required ionotropic support. Four patients died, giving a case fatality rate (CFR) of 0.69% (95%CI 0.2-1.82). In multivariate analysis, factors that predicted a requirement for ICU admission were being male (odds ratio [OR] 5.06 95%CI 1.72-14.87), younger than one month of age (OR 2.12, 1.06-4.21), having symptoms of lower respiratory tract infection at presentation (OR 10.46, 5.16-21.23) and having a pre-existing medical condition (OR 3.27, 1.67-6.42). Ominously, in univariate analysis co-infection with another virus predicted requirement for ICU admission.

Whilst this data largely reinforces our current thinking that children are less severely affected by COVID-19 than adults it does sound several notes of caution. First, despite being relatively well tolerated in children a proportion of those infected will require ICU admission and prolonged ventilation. Second, as we approach winter, with its increased prevalence of other viral infections, the proportion of children requiring ICU admission may also increase. Third, these data were collected before the paediatric inflammatory multisystem syndrome temporally associated with SARS-CoV-2 (PIMS-TS) was recognised and thus it does not include any data on this significant complication of COVID-19. However, it is worth noting that nearly 80% of all patients included in this study were diagnosed in tertiary or quaternary centres and as such are likely to be a more severely affected cohort than the general population.





The effect of frailty on survival in patients with COVID-19 (COPE): a multicentre, European, observational cohort study by Hewitt et al ⁴

Topic: Observational

Impact rating: Head Turner

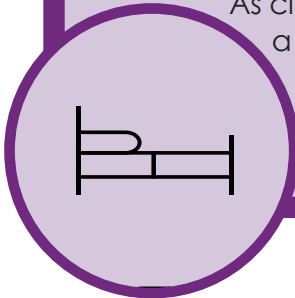
Scout: Ffion Barham

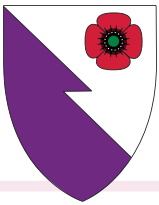


This is the first paper to show a link between frailty and mortality in COVID-19, independent of age. 1564 participants from 11 hospitals (ten in the UK and one in Italy) were given a Clinical Frailty Scale (CFS) score and mortality for each subgroup was recorded.

Independent of other risk factors (cardiovascular disease, age, etc), increasing frailty was associated with increasing mortality. Length of stay increased with increased frailty. 49.4% of the study population scored 5 or above on the CFS (range 1-9), meaning that almost half of the patients were significantly frail. This study is limited by the data collected (for example, no BMI data were collected) and it only included those admitted to hospital who survived more than 24 hours.

As clinicians who regularly discuss a ceiling of treatment with our patients and make a judgement call on risks of discharge from the emergency department, this paper demonstrates that frailty is an important element to consider in our ageing population. It also highlights the prevalence of frailty in the UK population and the direct link between frailty and worse outcomes.





European Resuscitation Council COVID-19 guidelines executive summary by Nolan et al ⁵

Topic: Treatment

Impact rating: Head Turner

Scout: Stacey Webster



This paper, published in the journal Resuscitation, provides a number of recommendations and changes of guidance relating to the resuscitation of patients with suspected or confirmed COVID-19, with particular reference to the risk to healthcare professionals. This is for both lay persons and healthcare providers in basic and advanced life support. It uses evidence from the recent systematic review by the International Liaison Committee on Resuscitation (ILCOR).

The recommendations were as follows;

- Chest compressions and CPR have the potential to generate aerosols.
- Lay rescuers should consider compression-only resuscitation and public access defibrillation but may wish to deliver rescue breaths to children.
- Healthcare professionals should use PPE for aerosol generating procedures during resuscitation.
- It may be reasonable for healthcare professionals to consider defibrillation before donning PPE in situations where the provider assesses the benefits may exceed the risks.

Separate guidance for the resuscitation of children has been provided noting that the majority will have only mild disease excepting the very young or those with co-morbid conditions. The guidelines also discuss the implications for resuscitation education and courses, which centres on wearing appropriate PPE, generic public health guidance and a focus on alternative methods of education delivery such as virtual learning.



In summary

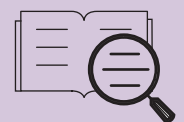
Prasad et al review the effects of COVID-19 on the cardiovascular system ¹

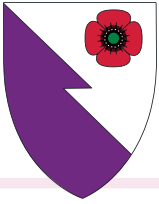
Shechter et al. surveyed healthcare workers in New York to determine the mental health effects of working during the pandemic ²

Götzinger et al. report the epidemiology of COVID-19 in a large international cohort of children ³

Hewitt et al. show that frailty is associated with both earlier death and longer time spent in hospital in patients with COVID-19 ⁴

Nolan et al. summarise the most recent guidance on resuscitation of patients with COVID-19 ⁵





References



- 1) Prasad A, Panhwar S, Hendel RC, Sheikh O, Mushtaq Z, Dollar F, Vinas A, Alraies C, Almonani A, Nguyen TH, Amione-Guerra J. COVID-19 and the cardiovascular system: A review of current data, summary of best practices, outline of controversies and illustrative case reports. [Published online ahead of print, 15 Jun 2020.] *Am Heart J* 2020; 226:174-187. doi.org/10.1016/j.ahj.2020.06.009
- 2) Shechter A, Diaz F, Moise N, et al. Psychological distress, coping behaviors, and preferences for support among New York healthcare workers during the COVID-19 pandemic. *General Hospital Psychiatry* 2020;66:1–8. doi:10.1016/j.genhosppsych.2020.06.007
- 3) Göttinger F, Santiago-Garcia B, Boguera-Julián A et al. COVID-19 in children and adolescents in Europe: a multinational, multicentre cohort study. *Lancet Child Adolesc Health* 2020; published online June 25 2020. DOI: 10.1016/S2352-4642(20)30177-2
- 4) Hewitt J, Carter B, Vilches-Moraga A et al. The effect of frailty on survival in patients with COVID-19 (COPE): a multicentre, European, observational cohort study. *Lancet Public Health* 2020. doi.org/10.1016/S2468-2667(20)30146-8
- 5) Nolan JP, Monsieurs KG, Bossaert L, Böttiger BW, Greif R, Lott C, Madar J, Olasveengen TM, Roehr CC, Semeraro F, Soar J. European Resuscitation Council COVID-19 Guidelines Executive Summary. [Published online ahead of print, 7 Jun 2020.] *Resuscitation* dx.doi.org/10.1016/j.resuscitation.2020.06.001