

Another week, another top 5! The focus and type of evidence is shifting each week with the team still screening over 1,500 studies. This week's top 5 contain a couple which will prompt a bit of deep thought and a bonus +1 of another retracted study. Look out for the Director's Cut for a collection of 10 others which caught our eye. If you would prefer an interactive live journal club, then check out the webinar series due to continue on Thursday 18th June at 11:00. [Click here to register.](#)

The following papers have been split into 3 categories that will allow you to focus on those 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

Are we all in this together? Longitudinal assessment of cumulative adversities by socioeconomic position in the first 3 weeks of lockdown in the UK by Wright et al ¹

Topic: Panel study

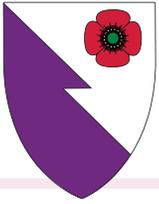
Rating: Head turner

Scout: Daniel Darbyshire



In the emergency department we are used to seeing the impact of socio-economic inequalities on health, and despite claims that "we are all in this together" the COVID-19 pandemic would suggest that inequalities are wider than ever. This paper reports the first results of the UCL COVID-19 Social Study - a panel study that involves online weekly data collection from participants during the pandemic. Data were from 12,527 adults between 25 March to 14 April 2020 encompassing the first 3 weeks of lockdown in the UK. They used Poisson and logit models to assess 10 different types of adverse experiences depending on an index of socio-economic position (SEP) (made up of annual household income, educational attainment, employment status, housing tenure and household overcrowding). There was a clear gradient for adverse experiences each week, with the strongest link with SEP being for adverse experiences related to finances and basic needs, but less for experiences related to the virus. This is a big study, but they have reported these results from only the first 3 weeks of the lockdown, before the virus hit its peak. The authors lack follow-up data for 40% of participants at the time of writing the paper and the study is not nationally representative. However, that does not detract from the paper's conclusion that individuals of lower SEP are experiencing more adverse events due to COVID-19.





The Association of Lung Ultrasound Images With COVID-19 Infection in an Emergency Room Cohort by Bar et al ²

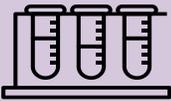
Topic: Diagnostics

Rating: Head turner

Scout: Govind Oliver



Where do you stand on POCUS in the pandemic? There are both sceptics and enthusiasts in the Emergency Medicine community. This prospective observational single centre study from France reports on the use of ultrasound (in two anterior and one posterolateral scanning position bilaterally as per the 'bedside lung ultrasound in emergency' protocol) for 100 patients with suspected COVID-19 (patients with existing interstitial lung disease were excluded). In the 31 patients who subsequently tested RT-PCR positive, the authors report that criteria independently associated with a positive result were: a qSOFA (quick sequential organ failure assessment score) ≥ 1 ; ≥ 3 B-lines at the upper site; consolidation and thickened pleura at the lower site; and thickened pleura line at the posterolateral site. Combining these into a prediction model performed reasonably well; the area under the receiver operating characteristic (ROC) curve was 0.82. Although the specificity of 62% and positive predictive value of 54% are poor, the sensitivity of 97% and negative predictive value of 98% are promising. If validation of this model achieves similar performance, it could be used to "rule out" COVID-19, and help stream patients from "potential COVID" to "non-COVID" triage categories. There are obvious hurdles regarding operator performance and quality assurance for the widespread application of this model but the potential seems very clear.



Serodiagnostics for Severe Acute Respiratory Syndrome-Related Coronavirus-2 by Cheng et al ³

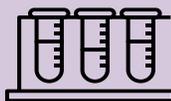
Topic: Diagnostics

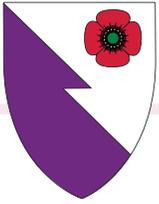
Rating: Head turner

Scout: Anisa Jafar



If, like me, you have lost count of the number of times you've heard: "But what does the antibody test really mean?" then this might be the paper for you, however it won't give you the neat answer you might be looking for. It presents a narrative review of the literature and lays out not only a way of thinking about the antibody test and explaining it to patients/colleagues/the neighbour's dog, but also a comparison of the different tests available and how they appear to have performed in available studies. The review does highlight that: full characterisation of antibody responses over time remains somewhat elusive; the translation of seropositivity to conferring immune protection is unknown; some cross-reactivity with endemic coronaviruses is more likely with some tests, but with others the cross-reactivity is more limited to picking up prior antibody response to SARS/MERS; and convalescent plasma therapy is not as simple to get right as it might sound. As always, no quick-wins, but a well-rounded update.





Clinical Characteristics of 58 Children with a Pediatric Inflammatory Multisystem Syndrome Temporally Associated With SARS-CoV-2 by Whittaker et al⁴

Topic: Observational

Rating: Head turner

Scout: Gaby Prager



So far in the COVID-19 pandemic an increase in children presenting with fever and multisystem inflammation similar to Kawasaki disease has been noted, suggesting a potentially new disorder temporally linked the SARS-CoV-2. This is a case series of 58 children who met the criteria for paediatric inflammatory multisystem syndrome temporally associated with severe acute respiratory syndrome coronavirus presenting to 8 hospitals in England. They compared these cases with patients that presented with Kawasaki disease, Kawasaki disease shock syndrome and toxic shock syndrome. All 58 children presented with persistent fever and a combination of sore throat, abdominal pain, headache and rash. There was a wide range of severity such that 50% were admitted to a paediatric critical care unit and 14% developed coronary artery dilatation or aneurysm. 45 of 58 patients had evidence of SARS-CoV-2 infection. Patients were on average older (median age 9) than those with Kawasaki Disease or Kawasaki Disease shock syndrome and on the whole higher inflammatory marker counts. This study adds weight to this syndrome differing from other inflammatory disorders in children and further characterises it.



Prevalence of COVID-19 in Out-of-Hospital Cardiac Arrest: Implications for Bystander CPR by Sayre et al⁵

Topic: Treatment

Rating: Game changer

Scout: Anisa Jafar



The "D" in the traditional 'DRS ABC' mnemonic for basic life support is "danger" i.e. make sure it is safe for the responder to approach. When managing a case of potential COVID-19 we have had to really revisit the "D", which is what this US cohort study of OHCA from January to April 2020 tries to capture. The study numbers are tricky to interpret because of missing data, especially in emergency response, may speak volumes about the type of case it was. What is interesting is (based on some numerical assumptions which we can pick apart all day): 1 rescuer performing CPR might die in 10,000 bystander CPR events and yet 300 lives might be saved amongst 10,000 patients with OHCA, hence their assertion that delaying CPR to don PPE should only be considered if there is a substantially high prevalence of COVID-19. Focus less on the precise numbers here (even if data gaps meant that they could be so wildly off that the risk/benefit is reversed) but on the implications in either direction. It's another way of thinking and poses ethical dilemmas that should keep us questioning our practice.





Retraction Letter ⁶ for: Cardiovascular Disease, Drug Therapy, and Mortality in Covid-19. N Engl J Med. ⁷ both by Mehra et al

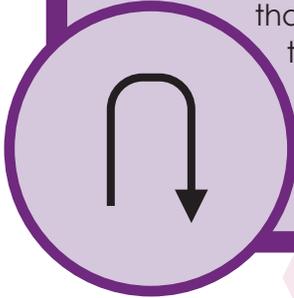
Topic: Retraction

Rating: Head turner

Scout: Daniel Darbyshire/Simon Carley



Sadly, we have another retraction of a paper published in a major journal this week. The paper, which had concluded, using a large data set, that cardiovascular disease was associated with mortality in COVID-19 but that ACE inhibitors and ARBs were not, has been retracted owing to a lack of transparency over the data. At a time when science and evidence-based medicine are more important than ever we believe that it is vital that we do not drop standards of critical appraisal and editorial oversight. Although it's great to see so much science in action at the moment we invite you to remain as sceptical as we are in interpreting the data.



In summary

Wright et al postulate the virus itself is not the biggest threat those at economic disadvantage

Bar et al show how POCUS could revolutionise COVID triage

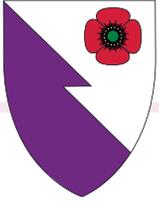
Cheng et al demystify the serodiagnostics of COVID-19

Whittaker et al give us more clues on paediatric inflammatory multisystem syndrome

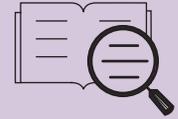
Sayre et al encourage us to revisit the risk of CPR/no CPR to the giver and receiver

Mehra et al retract their paper based on poor transparency of data





References



- 1) Wright, L., Steptoe, A., and Fancourt, D. "Are we all in this together? Longitudinal assessment of cumulative adversities by socioeconomic position in the first 3 weeks of lockdown in the UK." *J Epidemiol Community Health* (2020).
- 2) Bar, S., Lecourtois, A., Diouf, M., et al. The association of lung ultrasound images with COVID-19 infection in an emergency room cohort. *Anaesthesia* (2020). Accepted Author Manuscript. doi:10.1111/anae.15175
- 3) Cheng, M.P., Yansouni, C.P., Basta, et al. Serodiagnostics for Severe Acute Respiratory Syndrome–Related Coronavirus-2: A Narrative Review. *Annals of Internal Medicine* (2020).
- 4) Whittaker, E., Bamford, A., Kenny, J., et al. Clinical Characteristics of 58 Children With a Pediatric Inflammatory Multisystem Syndrome Temporally Associated With SARS-CoV-2. *JAMA* (2020).
- 5) Sayre, M.R., Barnard, L.M., Counts, C.R., et al. Prevalence of COVID-19 in Out-of-Hospital Cardiac Arrest: Implications for Bystander CPR. *Circulation*. (2020)
- 6) Mehra, M.R., Desai, S.S., Kuy, S., et al. Retraction: Cardiovascular Disease, Drug Therapy, and Mortality in Covid-19. *N Engl J Med*. DOI: 10.1056/NEJMoa2007621. *N Engl J Med*. 2020.
- 7) Mehra, M.R., Desai, S.S., Kuy, S., et al. Cardiovascular Disease, Drug Therapy, and Mortality in Covid-19. *N Engl J Med*. 2020.