The Strategy Unit
At NHS Midlands and Lancashire Commissioning Support Unit

COVID-19 Evidence Alert – 28th August 2020

Welcome

COVID-19 Evidence alert is a weekly update highlighting emerging evidence on the following key topics identified as useful in supporting Covid recovery planning:

1. Residential settings
2. Impacts of lifting restrictions
3. Long term rehabilitation needs
4. Screening and testing
5. Broader impacts on health outcomes
6. Impact on non-Covid care

This update follows on from a series of rapid evidence scans on these key topics, with corresponding evidence trackers providing details of relevant papers.

The evidence scans and corresponding evidence trackers can be found here: https://www.strategyunitwm.nhs.uk/covid19-and-coronavirus (see 'Evidence - Helping you to keep up to date').

Please note that this week's alert excludes summaries of emerging evidence and rapid reviews and will instead present abstracts from these sources, due to the breadth and volume of evidence covered.

Analytical Collaboration for COVID-19

As previously described the collaboration is supporting ad hoc immediate questions raised by national bodies but are also using their expertise to focus on questions that the NHS may lack the immediate resources to look at, which may be more medium-term, cut across sectors, or benefit from independent analysis.

As part our work to track emerging evidence, we have developed an evidence map on inequalities and COVID. The map is designed to organise relevant evidence by themes, using the recently published PROGRESS framework. It is a pragmatic rather than exhaustive approach and we hope it gives a helpful overview of this important field of study. You can find the evidence map here.

We have also recently updated our evidence scan on prospective and longitudinal studies to include emerging findings. You can find the updated scan here.

Residential settings

Commentary from the collaboration

Understanding changes to mortality during the pandemic Non-COVID-19 excess deaths in England and Wales. Kraindler J et al., The Health Foundation. (published online 17/8/20).

Guidance

Home care for patients with suspected or confirmed COVID-19 and management of their contacts. WHO Health Organization (12/08/20).

Rapid reviews

Emerging Evidence: Impact of Infection Outbreak on Long-Term Care Staff, A Rapid Review on Psychological Well-Being. **Embregts P et al., Journal of Long-Term Care.** "Context: Older people and people with an intellectual disability who receive long-term care are considered particularly vulnerable to infection outbreaks, such as the current Coronavirus Disease 2019. The combination of healthcare concerns and infection-related restrictions may result in specific challenges for long-term care staff serving these populations during infection outbreaks. Objectives: This review aimed to: (1) provide insight about the potential impact of infection outbreaks on the psychological state of healthcare staff and (2) explore suggestions to support and protect their psychological well-being. Method: Four databases were searched, resulting in 2,176 hits, which were systematically screened until six articles remained. Thematic analysis was used to structure and categorise the data. Findings: Studies about healthcare staff working in long-term care for people with intellectual disabilities were not identified. Psychological outcomes of healthcare staff serving older people covered three themes: emotional responses (i.e., fears and concerns, tension, stress, confusion, and no additional challenges), ethical dilemmas, and reflections on work attendance. Identified suggestions to support and protect care staff were related to education, provision of information, housing, materials, policy and guidelines. Limitations: Only six articles were included in the syntheses. Implications: Research into support for long-term care staff during an infection outbreak is scarce. Without conscious management, policy and research focus, the needs of this professional group may remain underexposed in current and future infection outbreaks. The content synthesis and reflection on it in this article provide starting points for new research and contribute to the preparation for future infection outbreaks."

Emerging evidence

COVID-19 Outbreak Among Adolescents at an Inpatient Behavioral Health Hospital. **Krass P et al., Journal of Adolescent Health.** "Purpose: We report on a coronavirus disease 2019 (COVID-19) outbreak among adolescents at an inpatient behavioral health facility that was identified within 5 weeks of known viral transmission in the surrounding community. Methods: Clinical records were reviewed for all inpatients aged <18 years with laboratory-confirmed COVID-19 between March 23 and April 21, 2020. Results: A total of 19 COVID-19–positive patients aged 11–17 years were identified. Patients most commonly presented with sore throat (37%) and nausea/vomiting (32%). Only 26% of patients presented with cough, shortness of breath, or fever. The most common medical comorbidity was asthma (32%), and the most common psychiatric comorbidity was posttraumatic stress disorder (63%). Infected patients were colocated and managed together on a separate COVID-19 unit to maintain a therapeutic group milieu. Mental health treatment was modified to limit staff exposure. Patients received daily medical assessment by an in-house pediatrician. One patient required intravenous fluids. No patients required transfer to a medical facility. Conclusions: Adolescents in psychiatric inpatient settings may be especially vulnerable to COVID-19 infection. Close collaboration between medical and psychiatric care providers is needed to optimize care for this population and to address admission and disposition options for infected patients."

Transmission of SARS-CoV-2 Involving Residents Receiving Dialysis in a Nursing Home — Maryland, April 2020. **Bigelow BF et al., MWWR Morbidity and Mortality Weekly Report.** "SARS-CoV-2, the virus that causes coronavirus disease 2019 (COVID-19), can spread rapidly in nursing homes once it is introduced (1,2). To prevent outbreaks, more data are needed to identify sources of introduction and means of transmission within nursing homes. Nursing home residents who receive hemodialysis (dialysis) might be at higher risk for SARS-CoV-2 infections because of their frequent exposures outside the nursing home to both community dialysis patients and staff members at dialysis centers (3). Investigation of a COVID-19 outbreak in a Maryland nursing home (facility A) identified a higher prevalence of infection among residents undergoing dialysis (47%; 15 of 32) than among those not receiving dialysis (16%; 22 of 138) (p<0.001). Among residents with COVID-19, the 30-day hospitalization rate among those receiving dialysis (53%) was higher than that among residents not receiving dialysis (18%) (p = 0.03); the proportion of dialysis patients who died was 40% compared with those who did not receive dialysis (27%) (p = 0.42).Careful consideration of infection control practices throughout the dialysis process (e.g., transportation, time spent in waiting areas, spacing of machines, and cohorting), clear communication between nursing homes and dialysis centers, and coordination of testing practices between these sites are critical to preventing COVID-19 outbreaks in this medically vulnerable population."

Coronavirus Disease 2019 Outcomes in French Nursing Homes That Implemented Staff Confinement With Residents. **Belmin J et al., JAMA Netw Open.** "This study included 17 nursing homes in which 794 staff members confined themselves to the facility with their 1250 residents. The national survey included 9513 facilities with 385 290 staff members and 695 060 residents. Only 1 nursing home with staff who self-confined (5.8%) had cases of COVID-19 among residents, compared with 4599 facilities in the national survey (48.3%) (P < .001). Five residents (0.4%) in the nursing homes with staff who self-confined had confirmed COVID-19, compared with 30 569 residents (4.4%) with confirmed COVID-19 in the national survey (P < .001); no residents of facilities with self-confinement had possible COVID-19, compared with 31 799 residents (4.6%) with possible COVID-19 in the national survey (P < .001). Five residents (0.4%) in the nursing homes with staff who self-confined died of COVID-19, compared with 12 516 (1.8%) in the national survey (odds ratio, 0.22; 95% CI, 0.09-0.53; P < .001). Twelve staff members (1.6%) from the facilities with self-confinement had confirmed or possible COVID-19, compared with 29 463 staff members (7.6%) in the national survey (P < .001)."

Facility-Wide Testing for SARS-CoV-2 in Nursing Homes — Seven U.S. Jurisdictions, March–June 2020. **Hatfield KM et al., MWWR Morbidity and Mortality Weekly Report.** "Facility-wide testing of health care personnel and nursing home residents for SARS-CoV-2 can inform strategies to prevent transmission. In two health department jurisdictions, testing in facilities without a previous COVID-19 case identified a prevalence of 0.4%. Five health department jurisdictions that targeted facility-wide testing after identification of a case found a prevalence of 12%; for each additional day before completion of initial facility-wide testing, an estimated 1.3 additional cases were identified. Performing facility-wide testing rapidly following identification of a case in a nursing home might facilitate control of transmission among residents and health care personnel. Strategies are needed to optimize facility-wide testing in nursing homes without a reported case."

Commentaries

The neglect of adult social care during covid-19. Glasby J & Needham C, BMJ.

Impacts of lifting restrictions

Commentary from the collaboration

COVID-19 policy tracker. A timeline of national policy and health system responses to COVID-19 in England. Dunn P et al., The Health Foundation. (published online 20/8/20).

Guidance

Advice on the use of masks for children in the community in the context of COVID-19. UNICEF & WHO. (published online 21/8/20).

Considerations for quarantine of contacts of COVID-19 cases. Interim Guidance. WHO. (published online 19/8/20).

Rapid reviews

What is the specific role of daycares and schools in COVID-19 transmission? National Collaborating Centre for Methods and Tools. (updated 11/8/20). "This rapid review was produced to support public health decision makers' response to the COVID-19 pandemic. This review seeks to identify, appraise and summarize emerging research evidence to support evidence-informed decision making. This rapid review is based on the most recent research evidence available at the time of release. A previous version was completed on July 24, 2020. This updated version includes evidence available up to August 7, 2020. Based on the published reports to date, young children are not a major source of transmission of COVID-19 in school and daycare settings. The quality of evidence is moderate, and findings are consistent. Analyses of infection clusters revealed that for children who were infected, transmission was traced back to community and home settings or adults, rather than amongst children within daycares or schools. Within household clusters, adults were much more likely to be the index case than children. The quality of evidence is moderate, and findings are consistent. Implementation of infection control measures appear to be important to limiting spread as evidenced by several outbreaks where limited or no measures were in place; It is not yet possible to evaluate the impact of specific infection prevention and control measures or make best practice recommendations for daycare or school settings due to variability in measures implemented."

Knowledge, Attitude, and Practice During the COVID-19 Pandemic: A Review. Puspitasari IM et al., J Multidiscip Healthc. "The World Health Organization declared the novel coronavirus (COVID-19) outbreak a global pandemic on March 11, 2020 due to its rapid spread on a global scale. More than 118,000 cases had been reported in 114 countries, and mortality had reached a total of 4291. Scholars have suggested that the level of panic is correlated with knowledge and attitude among the population. This review presents a summary of knowledge, attitude, and practice during the COVID-19 pandemic among healthcare workers, medical students, and populations in the US, the UK, Italy, Jordan, and China in April 2020. Analysis reveals that the level of the knowledge was positive in general, and optimistic attitudes and good practices are held. Utility of substantial knowledge and positive attitudes and practices hopefully can control the spread of COVID-19."

Improving the impact of non-pharmaceutical interventions during COVID-19: examining the factors that influence engagement and the impact on individuals. **Seale H et al., BMC Infect Dis.** "Background: During an evolving outbreak or pandemic, non-pharmaceutical interventions (NPIs) including physical distancing, isolation, and mask use may flatten the peak in communities. However, these strategies rely on community understanding and motivation to engage to ensure appropriate compliance and impact. To support current activities for COVID-19, the objectives of this narrative review was to identify the key determinants impacting on engagement. Methods: An integrative narrative literature review focused on NPIs. We aimed to identify published peer-reviewed articles that focused on the general community (excluding healthcare workers), NPIs (including school closure, quarantine, isolation, physical distancing and hygiene behaviours), and factors/characteristics (including social, physical, psychological, capacity, motivation, economic and demographic) that impact on engagement. Results: The results revealed that there are a range of demographic, social and psychological factors underpinning engagement with quarantine, school closures, and personal protective behaviours. Aside from the factors impacting on acceptance and compliance, there are several key community concerns about their use that need to be addressed including the potential for economic consequences. Conclusion: It is important that we acknowledge that these strategies will have an impact on an individual and the community. By understanding the barriers, we can identify what strategies need to be adopted to motivate individuals and improve community compliance. Using a behavioural framework to plan interventions based on these key barriers, will also ensure countries implement appropriate and targeted responses."

Emerging evidence

The influence of national policy characteristics on COVID-19 containment policies: a comparative analysis. **Migone AR, Policy Design and Practice.** "This article discusses the correlation between national policy characteristics and the success in "flattening the curve" of infection of the COVID-19 virus, which is a generally acknowledged measure to contain the worst medical outcomes of a pandemic. While individual cases require careful and granular analysis to properly unpack, the article finds that the best correlation is found when looking at the pattern of choice related to either proactive or reactive approaches to the implementation of containment measures. This is especially evident for countries that have either very low or very high infection rates per million persons. For intermediate rates we find that a variety of institutional, political, and procedural variables intervene in the process."

Onslaught of COVID-19: How Did Governments React and at What Point of the Crisis? **Uddin S et al., Population Health Management (preprint).** "The COVID-19 outbreak has taken many governments by surprise. While the crisis unfolds, it is instructive to explore how different governments reacted to the onslaught of an unknown disease. This research, using very recently collected and open-source data, meets this objective. The research reveals that, regarding 7 most commonly adopted preventive measures, governments have varied notably concerning their actions in relation to infection rate, disease rate, and timing of measures. The research also illustrates variations between governments for 6 countries: Australia, New Zealand, Spain, the United Kingdom, Italy, and the United States. As revealed in the summary independent-samples t test and Hedges' g values, both Oceanian countries (Australia and New Zealand) reacted differently compared to the other countries, which may have played a role in their low death and infection rates to date."

Forecasting the patterns of COVID-19 and causal impacts of lockdown in top five affected countries using Bayesian Structural Time Series Models. **Feroze N, Chaos, Solitons and Fractals.** "Background: There are numerous studies dealing with analysis for the future patterns of COVID-19 in different countries using conventional time series models. This study aims to provide more flexible analytical framework that decomposes the important components of the time series, incorporates the prior information, and captures the evolving nature of model parameters. Methods: We have employed the Bayesian structural time series (BSTS) models to investigate the temporal dynamics of COVID-19 in top five affected countries around the world in the time window March 1, 2020 to June 29, 2020. In addition, we have analyzed the casual impact of lockdown in these countries using intervention analysis under BSTS models. Results: We achieved better levels of accuracy as compared to ARIMA models. The forecasts for the next 30 days suggest that India, Brazil, USA, Russia and UK are expected to have 101.42%, 85.85%, 46.73%, 32.50% and 15.17% increase in number of confirmed cases, respectively. On the other hand, there is a chance of 70.32%, 52.54%, 45.65%, 19.29% and 18.23% growth in the death figures for India, Brazil, Russia, USA and UK, respectively. In addition, USA and UK have made quite sagacious choices for lifting/relaxing the lockdowns. However, the pace of outbreak has significantly increased in Brazil, India and Russia after easing the lockdowns. Conclusion: On the whole, the Indian and Brazilian healthcare system is likely to be seriously overburdened in the next month. Though USA and Russia have managed to cut down the rates of positive cases, but serious efforts will be required to keep these momentums on. On the other hand, UK has been successful in flattening their outbreak trajectories."

The effect of social distance measures on COVID-19 epidemics in Europe: an interrupted time series analysis. **Vokó Z and Pitter JG, Geroscience.** "Following the introduction of unprecedented "stay-at-home" national policies, the COVID-19 pandemic recently started declining in Europe. Our research aims were to characterize the changepoint in the flow of the COVID-19 epidemic in each European country and to evaluate the association of the level of social distancing with the observed decline in the national epidemics. Interrupted time series analyses were conducted in 28 European countries. Social distance index was calculated based on Google Community Mobility Reports. Changepoints were estimated by threshold regression, national findings were analyzed by Poisson regression, and the effect of social distancing in mixed effects Poisson regression model. Our findings identified the most probable changepoints in 28 European countries. Before changepoint, incidence of new COVID-19 cases grew by 24% per day on average. From the changepoint, this growth rate was reduced to 0.9%, 0.3% increase, and to 0.7% and 1.7% decrease by increasing social distancing quartiles. The beneficial effect of higher social distance quartiles (i.e., turning the increase into decline) was statistically significant for the fourth quartile. Notably, many countries in lower quartiles also achieved a flat epidemic curve. In these countries, other plausible COVID-19 containment measures could contribute to controlling the first wave of the disease. The association of social distance quartiles with viral spread could also be hindered by local bottlenecks in infection control. Our results allow for moderate optimism related to the gradual lifting of social distance measures in the general population, and call for specific attention to the protection of focal micro-societies enriching high-risk elderly subjects, including nursing homes and chronic care facilities."

Enacting national social distancing policies corresponds with dramatic reduction in COVID19 infection rates. **McGrail DJ et al. PLoS One.** "The outbreak the SARS-CoV-2 (CoV-2) virus has resulted in over 6.5 million cases of COVID19, greatly stressing global healthcare infrastructure.

Lacking medical prophylactic measures to combat disease spread, many nations have adopted social distancing policies in order to mitigate transmission of CoV-2. While mathematical models have suggested the efficacy of social distancing to curb the spread of CoV-2, there is a lack of systematic studies to quantify the real-world efficacy of these approaches. Here, we first demonstrate that implementation of social distancing policies in US states corresponded with a reduction in COVID19 spread rates, and that the reduction in spread rate is proportional to the average change in mobility. We validate this observation on a worldwide scale by analyzing COVID19 spread rate in 134 nations with varying social distancing policies. Globally, we find that social distancing policies significantly reduced the COVID19 spread rate, with resulting in an estimated 65% reduction (95% CI = 39-80%) in new COVID19 cases over a two week time period. These data suggest that social distancing policies may be a powerful tool to prevent spread of COVID19 in real-world scenarios."

Face coverings for covid-19: from medical intervention to social practice. van der Westhuizen HM et al., BMJ, 370:m3021. "Face coverings used by the public are now widely recommended as source control during the covid-19 pandemic. The dominant narrative driving policy has viewed face coverings as a medical intervention and evaluated their effectiveness from an infection control perspective. Face coverings are also a social practice and carry a range of meanings in different settings. Policies to encourage uptake should reflect the complex and contested sociocultural meanings of covering the face and draw on these to promote their use."

Learning from Deregulation: The Asymmetric Impact of Lockdown and Reopening on Risky Behavior During COVID-19. Glaeser EL et al., NATIONAL BUREAU OF ECONOMIC RESEARCH, NBER Working Paper No. 27650. "During the COVID-19 pandemic, states issued and then rescinded stay-at-home orders that restricted mobility. We develop a model of learning by deregulation, which predicts that lifting stay-at-home orders can signal that going out has become safer. Using restaurant activity data, we find that the implementation of stay-at-home orders initially had a limited impact, but that activity rose quickly after states' reopenings. The results suggest that consumers inferred from reopening that it was safer to eat out. The rational, but mistaken inference that occurs in our model may explain why a sharp rise of COVID-19 cases followed reopening in some states."

Ageism and COVID-19: a study of social inequality through opinions and attitudes about older people in the coronavirus crisis in Spain. García-Soler A et al., International LTC Policy Network. (last updated 12/8/20). "Older people are the most affected by COVID-19. Spain is also one of the countries that has most suffered this impact, especially in nursing homes environments. o In the media and in society in general, COVID-19 is being considered as a problem of older people, falling on numerous occasions into ageist approaches. Even with evidence of the existence of an ageism problem in society, not much is known about these stereotypes in relation to the health crisis caused by the Covid-19 pandemic. We present research showing the distribution of stereotypical and discriminatory attitudes in a sample of 840 participants that answered an online questionnaire created ad hoc with the aim to explore ageism during the critical period of the crisis caused by the COVID-19 pandemic in Spain. Our research shows that there were stereotypes and discriminatory attitudes, especially in younger groups pointing out what several authors understand as intergenerational tension. o These stereotypes, accepted by society, can have serious effects when discriminatory policies are articulated that affect basic rights, especially autonomy, access to resources, and dignity."

Impact of Wearing Masks, Hand Hygiene, and Social Distancing on Influenza, Enterovirus, and All-Cause Pneumonia During the Coronavirus Pandemic: Retrospective National Epidemiological Surveillance Study. **Chiu NC et al., J Med Internet Res.** "Background: The coronavirus disease (COVID-19) pandemic is an important health crisis worldwide. Several strategies were implemented to combat COVID-19, including wearing masks, hand hygiene, and social distancing. The impact of these strategies on COVID-19 and other viral infections remains largely unclear. Objective: We aim to investigate the impact of implemented infectious control strategies on the incidences of influenza, enterovirus infection, and all-cause pneumonia during the COVID-19 pandemic. Methods: We utilized the electronic database of the Taiwan National Infectious Disease Statistics System and extracted incidences of COVID-19, influenza virus, enterovirus, and all-cause pneumonia. We compared the incidences of these diseases from week 45 of 2016 to week 21 of 2020 and performed linear regression analyses. Results: The first case of COVID-19 in Taiwan was reported in late January 2020 (week 4). Infectious control strategies have been promoted since late January. The influenza virus usually peaks in winter and decreases around week 14. However, a significant decrease in influenza was observed after week 6 of 2020. Regression analyses produced the following results: 2017, R2=0.037; 2018, R2=0.021; 2019, R2=0.046; and 2020, R2=0.599. A dramatic decrease in all-cause pneumonia was also reported (R2 values for 2017-2020 were 0.435, 0.098, 0.352, and 0.82, respectively). Enterovirus had increased by week 18 in 2017-2019, but this was not observed in 2020. Conclusions: Using this national epidemiological database, we found a significant decrease in cases of influenza, enterovirus, and all-cause pneumonia during the COVID-19 pandemic. Wearing masks, hand hygiene, and social distancing may contribute not only to the prevention of COVID-19 but also to the decline of other respiratory infectious diseases. Further studies are warranted to elucidate the causal relationship."

Do established infection prevention and control measures prevent spread of SARS-CoV-2 to the hospital environment beyond the patient room? **Jerry J et al.J Hosp Infect.** "The role of the hospital environment in the transmission of infection is well described. With an emerging infection whose mode of transmission is under investigation, strict infection prevention and control measures, including patient isolation, hand hygiene, personal protective equipment that is doffed on exiting the patient room, and environmental cleaning should be implemented to prevent spread. Environmental testing demonstrated that COVID-19 patients contaminated the patient area (11/26, 42.3% of tests) but contamination of general ward areas was minimal (1/30, 3%) and the virus was detected after cleaning on one item only (1/25, 4%) which was noted to be in disrepair."

Commentaries

Four months into the COVID-19 pandemic, Sweden's prized herd immunity is nowhere in sight. Orlowski EJW & Goldsmith DJA, Journal of the Royal Society of Medicine.

Why Oldham shouldn't go into Lockdown. Heneghan C and Oke J, Oxford COVID-19 Evidence Service, Centre for Evidence-Based Medicine.

Airborne Transmission of SARS-CoV-2 Theoretical Considerations and Available Evidence. Klompas M et al., JAMA.

Once we have it, will we use it? A European survey on willingness to be vaccinated against COVID-19. Neumann-Böhme S et al., Eur J Health Econ.

Long term rehabilitation needs

Rapid reviews

Why Rehabilitation must have priority during and after the COVID-19-pandemic: A position statement of the Global Rehabilitation Alliance. Gutenbrunner C et al., J Rehabil Med. "COVID-19 has become a pandemic with strong influence on health systems. In many cases it leads to a disruption of rehabilitation service provision. On the other hand, rehabilitation must be an integral part of COVID-19 management. Rehabilitation for COVID-19 should start from acute and early post-acute care and needs to be continued in the post-acute and long-term rehabilitation phase. Of course, it should follow specific safety protocol. Additionally, rehabilitation must be kept available for all other people who are in need. From the perspective of health system, the Global Rehabilitation Alliance urges decision makers to ensure that rehabilitation services will be available for all patients with COVID-19 in the acute, post-acute and long-term phase. Additionally, it must be ensured that all other persons with rehabilitation need have access to rehabilitation services. Rehabilitation services must be equipped with personal protection equipment and follow strict hygiene measures. In particular, rehabilitation must be accessible for vulnerable populations. For that reason, rehabilitation must be kept a health priority during the COVID-19 pandemic and given adequate financial resources. Last but not least, scientific studies should be performed to clarify the impact of the pandemic on rehabilitation services as well as on the needs for rehabilitation of COVID-19 patients."

The Interrelation of Neurological and Psychological Symptoms of COVID-19: Risks and Remedies. Nami M et al., Journal of Clinical Medicine. "COVID-19 has catastrophically affected the world's panoramic view of human well-being in terms of healthcare and management. With the increase in the number of cases worldwide, neurological symptoms and psychological illnesses from COVID-19 have increasingly upsurged. Mental health illness and affective disorders, including depression, obsessive-compulsive disorder, anxiety, phobia, and panic disorders, are highly impacted due to social distress. The COVID-19 pandemic not only affected people with pre-existing mental and affective illnesses, but also healthy individuals with anxiety, worrying, and panic symptoms, and fear conditioning. In addditon, the novel coronavirus is known to impact the central nervous system in the brain, resulting in severe and certain long-lasting neurological issues. Owing to the significance of neurological and psychological events, the present perspective has been an attempt to disseminate the impact of COVID-19 on neural injury through inflammation, and its interrelation with psychological symptoms. In this current review, we synthesize the literature to highlight the critical associations between SARS-CoV-2 infection and the nervous system, and mental health illness, and discuss potential mechanisms of neural injury through psycho-neuroimmunity."

Considerations for Return to Exercise Following Mild-to-Moderate COVID-19 in the Recreational Athlete. Metzl jd et al., HSS Journal. "The COVID-19 pandemic has resulted in significant morbidity and mortality around the world. The spectrum of COVID-19 is broad, from clinical disease requiring intensive medical care to less severe symptoms that are treated with supportive care. The majority of COVID-19 cases fall into the mild-to-moderate category, with symptoms lasting less than 6 weeks. Nevertheless, the morbidity from COVID-19 is significant and can affect multiple body systems, most frequently the cardiac, pulmonary, hematologic, musculoskeletal, and gastrointestinal systems. For patients who wish to return to exercise after

mild-to-moderate COVID-19, the wide range of disease expression presents a challenge for clinicians seeking to offer counsel. This literature review on return to activity following mild to moderate COVID-19 in the recreational athlete includes evidence-based considerations and recommendations for clinicians in guiding the safest return to activity."

Key Aspects in Nutritional Management of COVID-19 Patients. Fernández-Quintela A et al., Journal of Clinical Medicine. "This review deals with the relationship among nutrition, the immune system, and coronavirus disease 2019 (COVID-19). The influence of nutrients and bioactive molecules present in foodstuffs on immune system activity, the influence of COVID-19 on the nutritional status of the patients, and the dietary recommendations for hospitalized patients are addressed. Deficient nutritional status is probably due to anorexia, nausea, vomiting, diarrhea, hypoalbuminemia, hypermetabolism, and excessive nitrogen loss. There is limited knowledge regarding the nutritional support during hospital stay of COVID-19 patients. However, nutritional therapy appears as first-line treatment and should be implemented into standard practice. Optimal intake of all nutrients, mainly those playing crucial roles in immune system, should be assured through a diverse and well-balanced diet. Nevertheless, in order to reduce the risk and consequences of infections, the intakes for some micronutrients may exceed the recommended dietary allowances since infections and other stressors can reduce micronutrient status. In the case of critically ill patients, recently published guidelines are available for their nutritional management. Further, several natural bioactive compounds interact with the angiotensin-converting enzyme 2 (ACE2) receptor, the gateway for severe acute respiratory syndrome (SARS) and severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Natural bioactive compounds can also reduce the inflammatory response induced by SARS-CoV-2. These compounds are potential beneficial tools in the nutritional management of COVID-19 patients."

Commentaries

COVID-19, the heart and returning to physical exercise. Kennedy FM & Sharma S, Occupational Medicine.

Useful resources

Rehabilitation. Royal College of Occupational Therapists (RCOT).

Covid-19: the Road to Recovery. The Chartered Society of Physiotherapy (CSP).

Screening and testing

Commentary from the collaboration

Strengthening health protection: right idea, wrong time. Timmins N. The King's Fund. (published online 20/8/20).

PHE reorganisation is highly risky and justification for the change has not been fully set out. The Health Foundation. (published online 18/8/20).

Dismantling PHE in the midst of a pandemic carries serious risks. Dixon J et al., The Health Foundation, Nuffield Trust & The King's Fund. (published online 24/8/20).

Guidance

Exploration of COVID-19 health-care worker cases: Implications for action. WHO Health Organization. (21/08/20).

Public health surveillance for COVID-19: interim guidance. WHO Health Organization (07/08/20).

What we know about the COVID-19 immune response. WHO Health Organization. (02/08/20)

Rapid reviews

Rapid, point-of-care antigen and molecular-based tests for diagnosis of SARS-CoV-2 infection. **Dinnes J et al., Cochrane Database of Systematic Reviews.** "This review identifies early-stage evaluations of point-of-care tests for detecting SARS-CoV-2 infection, largely based on remnant laboratory samples. The findings currently have limited applicability, as we are uncertain whether tests will perform in the same way in clinical practice, and according to symptoms of COVID-19, duration of symptoms, or in asymptomatic people. Rapid tests have the potential to be used to inform triage of RT-PCR use, allowing earlier detection of those testing positive, but the evidence currently is not strong enough to determine how useful they are in clinical practice. Prospective and comparative evaluations of rapid tests for COVID-19 infection in clinically relevant settings are urgently needed. Studies should recruit consecutive series of eligible participants, including both those presenting for testing due to symptoms and asymptomatic people who may have come into contact with confirmed cases. Studies should clearly describe symptomatic status and document time from symptom onset or time since exposure. Point-of-care tests must be conducted on samples according to manufacturer instructions for use and be conducted at the point of care. Any future research study report should conform to the Standards for Reporting of Diagnostic Accuracy (STARD) guideline."

Digital contact tracing technologies in epidemics: a rapid review. **Anglemyer A et al., Cochrane Database of Systematic Reviews.** "The effectiveness of digital solutions is largely unproven as there are very few published data in real-world outbreak settings. Modelling studies provide low-certainty evidence of a reduction in secondary cases if digital contact tracing is used together with other public health measures such as self-isolation. Cohort studies provide very low-certainty evidence that digital contact tracing may produce more reliable counts of contacts and reduce time to complete contact tracing. Digital solutions may have equity implications for at-risk populations with poor internet access and poor access to digital technology. Stronger primary research on the effectiveness of contact tracing technologies is needed, including research into use of digital solutions in conjunction with manual systems, as digital solutions are unlikely to be used alone in real-world settings. Future studies should consider access to and acceptability of digital solutions, and the resultant impact on equity. Studies should also make acceptability and uptake a primary research question, as privacy concerns can prevent uptake and effectiveness of these technologies."

Diagnostic Value of Imaging Modalities for COVID-19: Scoping Review. **Aljondi R and Alghamdi S, J Med Internet Res.** "Background: Coronavirus disease (COVID-19) is a serious infectious disease that causes severe respiratory illness. This pandemic represents a serious public health risk. Therefore, early and accurate diagnosis is essential to control disease progression. Radiological examination plays a crucial role in the early identification and management of infected patients. Objective: The aim of this review was to identify the diagnostic value of different imaging modalities

used for diagnosis of COVID-19. Methods: A comprehensive literature search was conducted using the PubMed, Scopus, Web of Science, and Google Scholar databases. The keywords diagnostic imaging, radiology, respiratory infection, pneumonia, coronavirus infection and COVID-19 were used to identify radiology articles focusing on the diagnosis of COVID-19 and to determine the diagnostic value of various imaging modalities, including x-ray, computed tomography (CT), ultrasound, and nuclear medicine for identification and management of infected patients. Results: We identified 50 articles in the literature search. Studies that investigated the diagnostic roles and imaging features of patients with COVID-19, using either chest CT, lung ultrasound, chest x-ray, or positron emission topography/computed tomography (PET/CT) scan, were discussed. Of these imaging modalities, chest x-ray and CT scan are the most commonly used for diagnosis and management of COVID-19 patients, with chest CT scan being more accurate and sensitive in identifying COVID-19 at early stages. Only a few studies have investigated the roles of ultrasound and PET/CT scan in diagnosing COVID-19. Conclusions: Chest CT scan remains the most sensitive imaging modality in initial diagnosis and management of suspected and confirmed patients with COVID-19. Other diagnostic imaging modalities could add value in evaluating disease progression and monitoring critically ill patients with COVID-19."

Automated and partly automated contact tracing: a systematic review to inform the control of COVID-19. Braithwaite I et al., The Lancet Digital Health. "Evidence for the use of automated or partly automated contact-tracing tools to contain severe acute respiratory syndrome coronavirus 2 is scarce. We did a systematic review of automated or partly automated contact tracing. We searched PubMed, EMBASE, OVID Global Health, EBSCO Medical COVID Information Portal, Cochrane Library, medRxiv, bioRxiv, arXiv, and Google Advanced for articles relevant to COVID-19, severe acute respiratory syndrome, Middle East respiratory syndrome, influenza, or Ebola virus, published from Jan 1, 2000, to April 14, 2020. We also included studies identified through professional networks up to April 30, 2020. We reviewed all full-text manuscripts. Primary outcomes were the number or proportion of contacts (or subsequent cases) identified. Secondary outcomes were indicators of outbreak control, uptake, resource use, cost-effectiveness, and lessons learnt. This study is registered with PROSPERO (CRD42020179822). Of the 4036 studies identified, 110 full-text studies were reviewed and 15 studies were included in the final analysis and quality assessment. No empirical evidence of the effectiveness of automated contact tracing (regarding contacts identified or transmission reduction) was identified. Four of seven included modelling studies that suggested that controlling COVID-19 requires a high population uptake of automated contact-tracing apps (estimates from 56% to 95%), typically alongside other control measures. Studies of partly automated contact tracing generally reported more complete contact identification and follow-up compared with manual systems. Automated contact tracing could potentially reduce transmission with sufficient population uptake. However, concerns regarding privacy and equity should be considered. Well designed prospective studies are needed given gaps in evidence of effectiveness, and to investigate the integration and relative effects of manual and automated systems. Large-scale manual contact tracing is therefore still key in most contexts."

Engagement and adherence trade-offs for SARS-CoV-2 contact tracing. Lucas TCD et al., MedRxiv. (pre-print). "Contact tracing is an important tool for allowing countries to ease lockdown policies introduced to combat SARS-CoV-2. For contact tracing to be effective, those with symptoms must self-report themselves while their contacts must self-isolate when asked. However, policies such as legal enforcement of self-isolation can create trade-offs by dissuading individuals from self-

reporting. We use an existing branching process model to examine which aspects of contact tracing adherence should be prioritised. We consider an inverse relationship between self-isolation adherence and self-reporting engagement, assuming that increasingly strict self-isolation policies will result in fewer individuals self-reporting to the programme. We find that policies that increase the verage duration of self-isolation, or that increase the probability that people self-isolate at all, at the expense of reduced self-reporting rate, will not decrease the risk of a large outbreak and may increase the risk, depending on the strength of the trade-off. These results suggest that policies to increase self-isolation adherence should be implemented carefully. Policies that increase self-isolation adherence at the cost of self-reporting rates should be avoided."

Diagnostic Characteristics of Serological-Based COVID-19 Testing: A Systematic Review and Meta-Analysis. Hourneaux de Moura DT et al., Clinics. "Serologic testing for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) promises to assist in assessing exposure to and confirming the diagnosis of coronavirus disease 2019 (COVID-19), and to provide a roadmap for reopening countries worldwide. Considering this, a proper understanding of serologic-based diagnostic testing characteristics is critical. The aim of this study was to perform a structured systematic review and meta-analysis to evaluate the diagnostic characteristics of serological-based COVID-19 testing. Electronic searches were performed using Medline (PubMed), EMBASE, and Cochrane Library. Full-text observational studies that reported IgG or IgM diagnostic yield and used nucleic acid amplification tests (NAATs) of respiratory tract specimens, as a the reference standard in English language were included. A bivariate model was used to compute pooled sensitivity, specificity, positive/negative likelihood ratio (LR), diagnostic odds ratio (OR), and summary receiver operating characteristic curve (SROC) with corresponding 95% confidence intervals (CIs). Five studies (n=1,166 individual tests) met inclusion criteria. The pooled sensitivity, specificity, and diagnostic accuracy for IgG was 81% [(95% CI, 61-92);I2=95.28], 97% [(95% CI, 78-100);I2=97.80], and 93% (95% CI, 91-95), respectively. The sensitivity, specificity, and accuracy for IgM antibodies was 80% [(95% CI, 57-92);I2=94.63], 96% [(95% CI, 81-99);I2=92.96] and 95% (95% CI, 92-96). This meta-analysis demonstrates suboptimal sensitivity and specificity of serologic-based diagnostic testing for SARS-CoV-2 and suggests that antibody testing alone, in its current form, is unlikely to be an adequate solution to the difficulties posed by COVID-19 and in guiding future policy decisions regarding social distancing and reopening of the economy worldwide."

A Systematic Review of Smartphone Applications Available for Corona Virus Disease 2019 (COVID19) and the Assessment of their Quality Using the Mobile Application Rating Scale (MARS). Davalbhakta S et al., Journal of Medical Systems. "The global impact of COVID-19 pandemic has led to a rapid development and utilization of mobile health applications. These are addressing the unmet needs of healthcare and public health system including contact tracing, health information dissemination, symptom checking and providing tools for training healthcare providers. Here we provide an overview of mobile applications being currently utilized for COVID-19 and their assessment using the Mobile Application Rating Scale. We performed a systematic review of the literature and mobile platforms to assess mobile applications currently utilized for COVID-19, and a quality assessment of these applications using the Mobile Application Rating Scale (MARS) for overall quality, Engagement, Functionality, Aesthetics, and Information. Finally, we provide an overview of the key salient features that should be included in mobile applications being developed for future use. Our search identified 63 apps that are currently being used for COVID-19. Of these, 25 were selected from the Google play store and Apple App store in India, and 19 each from the UK and US.

18 apps were developed for sharing up to date information on COVID-19, and 8 were used for contact tracing while 9 apps showed features of both. On MARS Scale, overall scores ranged from 2.4 to 4.8 with apps scoring high in areas of functionality and lower in Engagement. Future steps should involve developing and testing of mobile applications using assessment tools like the MARS scale and the study of their impact on health behaviours and outcomes."

Biosensors: frontiers in rapid detection of COVID-19. Samson R et al., 3 Biotech. "The rapid community-spread of novel human coronavirus 2019 (nCOVID19 or SARS-Cov2) and morbidity statistics has put forth an unprecedented urge for rapid diagnostics for quick and sensitive detection followed by contact tracing and containment strategies, especially when no vaccine or therapeutics are known. Currently, quantitative real-time polymerase chain reaction (qRT-PCR) is being used widely to detect COVID-19 from various types of biological specimens, which is time-consuming, labor-intensive and may not be rapidly deployable in remote or resource-limited settings. This might lead to hindrance in acquiring realistic data of infectivity and community spread of SARS-CoV-2 in the population. This review summarizes the existing status of current diagnostic methods, their possible limitations, and the advantages of biosensorbased diagnostics over the conventional ones for the detection of SARS-Cov-2. Novel biosensors used to detect RNA-viruses include CRISPR-Cas9 based paper strip, nucleic-acid based, aptamer-based, antigen-Au/Ag nanoparticles-based electrochemical biosensor, optical biosensor, and Surface Plasmon Resonance. These could be efective tools for rapid, authentic, portable, and more promising diagnosis in the current pandemic that has afected the world economies and humanity. Present challenges and future perspectives of developing robust biosensors devices for rapid, scalable, and sensitive detection and management of COVID-19 are presented in light of the test-test-test theme of the World Health Organization (WHO)."

A Review of the Importance of Atypical Otorhinolaryngological Symptoms in the Screening of COVID-19 Patients. Kaur G et al., Indian J Otolaryngol Head Neck Surg. "While the world is fighting against the newly emerged highly contagious coronavirus strain, new evolving ideas regarding symptoms and investigations are reverberating among health care professionals to combat the public health emergency. The study aims to review various presenting symptoms of COVID-19 especially the unusual one and analyzing the importance of olfactory and taste disturbances. 20 studies published recently in the last 1 year were analyzed and discussed for insights into the unusual presentation of symptoms in COVID-19 patients. All the findings and statements in this review regarding the pandemic are based on published information as listed in the references. Most research articles initially focused on fever and respiratory symptoms. Later gastrointestinal symptoms were also taken into consideration. Only 5 studies from the literature have mentioned any smell and taste disturbances after SARS-CoV-2 infection to date. So changing trends can be seen in publications and recognizing these symptoms has important to timely combat this disease. The majority of corona virus-infected patients suffer from mild to moderate severity of the disease. Much hyped up symptoms of the respiratory tract may not be shown by a greater number of patients. So the need of the hour especially in developing and densely populated nations is to recognize unusual symptoms of COVID-19 especially its influence over smell and taste sensation to prevent any delay or misdiagnosis."

Approaches Based on Artificial Intelligence and the Internet of Intelligent Things to Prevent the Spread of COVID-19: Scoping Review. Adly AS et al., J Med Internet Res. "Background: Artificial intelligence (AI) and the Internet of Intelligent Things (IIoT) are promising

technologies to prevent the concerningly rapid spread of coronavirus disease (COVID-19) and to maximize safety during the pandemic. With the exponential increase in the number of COVID-19 patients, it is highly possible that physicians and health care workers will not be able to treat all cases. Thus, computer scientists can contribute to the fight against COVID-19 by introducing more intelligent solutions to achieve rapid control of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes the disease. Objective: The objectives of this review were to analyze the current literature, discuss the applicability of reported ideas for using AI to prevent and control COVID-19, and build a comprehensive view of how current systems may be useful in particular areas. This may be of great help to many health care administrators, computer scientists, and policy makers worldwide. Methods: We conducted an electronic search of articles in the MEDLINE, Google Scholar, Embase, and Web of Knowledge databases to formulate a comprehensive review that summarizes different categories of the most recently reported AI-based approaches to prevent and control the spread of COVID-19. Results: Our search identified the 10 most recent AI approaches that were suggested to provide the best solutions for maximizing safety and preventing the spread of COVID-19. These approaches included detection of suspected cases, large-scale screening, monitoring, interactions with experimental therapies, pneumonia screening, use of the IIoT for data and information gathering and integration, resource allocation, predictions, modeling and simulation, and robotics for medical quarantine. Conclusions: We found few or almost no studies regarding the use of AI to examine COVID-19 interactions with experimental therapies, the use of AI for resource allocation to COVID-19 patients, or the use of AI and the IIoT for COVID-19 data and information gathering/integration. Moreover, the adoption of other approaches, including use of AI for COVID-19 prediction, use of AI for COVID-19 modeling and simulation, and use of AI robotics for medical quarantine, should be further emphasized by researchers because these important approaches lack sufficient numbers of studies. Therefore, we recommend that computer scientists focus on these approaches, which are still not being adequately addressed."

A Review on Deep Learning Techniques for the Diagnosis of Novel Coronavirus (COVID-19). Islam M et al. Preprint. "Novel coronavirus (COVID-19) outbreak, has raised a calamitous situation all over the world and has become one of the most acute and severe ailments in the past hundred years. The prevalence rate of COVID-19 is rapidly rising every day throughout the globe. Although no vaccines for this pandemic have been discovered yet, deep learning techniques proved themselves to be a powerful tool in the arsenal used by clinicians for the automatic diagnosis of COVID-19. This paper aims to overview the recently developed systems based on deep learning techniques using different medical imaging modalities like Computer Tomography (CT) and X-ray. This review specifically discusses the systems developed for COVID-19 diagnosis using deep learning techniques and provides insights on well-known data sets used to train these networks. It also highlights the data partitioning techniques and various performance measures developed by researchers in this field. A taxonomy is drawn to categorize the recent works for proper insight. Finally, we conclude by addressing the challenges associated with the use of deep learning methods for COVID-19 detection and probable future trends in this research area. This paper is intended to provide experts (medical or otherwise) and technicians with new insights into the ways deep learning techniques are used in this regard and how they potentially further works in combatting the outbreak of COVID-19."

Emerging evidence

Standing up to the test: learning lessons for the next phase of the national Covid-19 testing strategy. NHS Providers. "From the outset of the pandemic, the government has failed to set out a coherent testing strategy which inspired confidence.' Only 18% of trust leaders agreed that the government has had the right approach to testing to meet the needs of trusts and the communities they serve. The current approach to testing – introduced in May – has inspired slightly more confidence among trust leaders, with 32% saying it will meet the needs of the communities they serve over the next one to three months, though this is still outweighed by those who disagree with this statement (37%). Only four in ten (40%) trust leaders believe their stated priorities for testing are deliverable in the next one to three months. Trusts are working hard to provide testing to their communities and are delivering under the current national COVID-19 testing strategy. Significant work has gone into the steady increase in testing capacity, and 83% of trust leaders believe they are meeting testing requirements under current government guidance. A minority of trusts are still struggling to meet current requirements. Generally, these trusts are not in the acute sector and have not had the benefit of access to sufficient resources, including on-site testing laboratories. Turnaround times for testing are encouraging overall, with 70% of trusts 'usually' or 'always' receiving results the next day. However, trusts using laboratories in partnering organisations, or lighthouse labs, are far less likely to receive a quick turnaround in results. Variation in turnaround times continues to block progress in recovering non-COVID services. Insufficient capacity to quickly test staff and patients, and a shortage of supplies are the largest barriers to resuming services. If resources for more testing were available, over three quarters of trust leaders (77%) assigned a high priority to improving the current standard of testing (including turnaround time) for symptomatic patients and staff. There needs to be greater local involvement and buy-in for national plans, particularly as the next phase of the pandemic is focused on responses to local outbreaks. A large majority of trust leaders (70%) are eager to take on a greater role in co-ordinating testing for health and care within their local area."

Impact of a novel community testing pathway for people with suspected COVID-19 in Wales: a cost-minimisation analysis. Currie J et al., BMJ Open. "OBJECTIVE: To compare National Health Service (NHS) organisations' testing pathways for patients with suspected COVID-19 in the community versus standard hospital testing practices. PERSPECTIVE: NHS commissioners and services. METHODS: During the containment phase of the COVID-19 pandemic we developed a community model pathway for COVID-19 testing in Wales with testing teams undertaking swabbing for COVID-19 in individuals' usual place of residence. We undertook a cost-minimisation analysis comparing the costs to the NHS in Wales of community testing for COVID-19 versus standard hospital testing practices and ambulance conveyancing. We analysed data from patients with suspected COVID-19 between January and February 2020 and applied assumptions of costs from national contractual and reference costs for ambulances, staffing and transportation with market costs at the time of publication. RESULTS: 177 patients with suspected COVID-19 underwent community testing via local NHS organisations between January and February 2020 with a mean age of 46.1 (IQR 27.5-56.3). This was 92% of total patients who were tested for COVID-19 during this period. We estimate, compared with standard hospital testing practices, cash savings in improved productivity for the NHS of pound24,539 during this time period, in addition to further non-monetised benefits for hospital and ambulance flow. CONCLUSIONS: Community testing for COVID-19 in Wales is now an established pathway and continues to bring benefits for patients, local healthcare organisations and the NHS. Further application of this model in other settings and to other infectious diseases may herald promising returns."

COVID-19 in children: analysis of the first pandemic peak in England. Ladhani SN et al., Archives of Disease in Childhood. "OBJECTIVES: To assess disease trends, testing practices, community surveillance, case-fatality and excess deaths in children as compared with adults during the first pandemic peak in England. SETTING: England. PARTICIPANTS: Children with COVID-19 between January and May 2020. MAIN OUTCOME MEASURES: Trends in confirmed COVID-19 cases, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) positivity rates in children compared with adults; community prevalence of SARS-CoV-2 in children with acute respiratory infection (ARI) compared with adults, case-fatality rate in children with confirmed COVID-19 and excess childhood deaths compared with the previous 5 years. RESULTS: Children represented 1.1% (1,408/129,704) of SARS-CoV-2 positive cases between 16 January 2020 and 3 May 2020. In total, 540 305 people were tested for SARS-COV-2 and 129,704 (24.0%) were positive. In children aged <16 years, 35,200 tests were performed and 1408 (4.0%) were positive for SARS-CoV-2, compared to 19.1%-34.9% adults. Childhood cases increased from mid-March and peaked on 11 April before declining. Among 2,961 individuals presenting with ARI in primary care, 351 were children and 10 (2.8%) were positive compared with 9.3%-45.5% in adults. Eight children died and four (case-fatality rate, 0.3%; 95% CI 0.07% to 0.7%) were due to COVID-19. We found no evidence of excess mortality in children. CONCLUSIONS: Children accounted for a very small proportion of confirmed cases despite the large numbers of children tested. SARS-CoV-2 positivity was low even in children with ARI. Our findings provide further evidence against the role of children in infection and transmission of SARS-CoV-2."

COVID-19 contact tracing using sexual health services in Cumbria. Currie S, Sexually Transmitted Infections. "Cumbria Sexual Health Services (CSHS) in collaboration with Cumbria Public Health and local authorities have established a COVID-19 contact tracing pathway for Cumbria. The local system was live 10 days prior to the national system on 18 May 2020. It was designed to interface and dovetail with the government's track and trace programme."

Self-assessment overestimates historical COVID-19 disease relative to sensitive serological assays: cross sectional study in UK key workers. Mulchandani R et al., MedRxiv. (pre-print). "Objective To measure the association between self-reported signs and symptoms and SARS-CoV-2 seropositivity. Design Cross sectional study of three key worker groups. Setting Six acute NHS hospitals and two Police and Fire and Rescue sites in England. Participants Individuals were recruited from three streams: (A) Police and Fire and Rescue services (n=1147), (B) healthcare workers (n=1546) and (C) healthcare workers with previously positive virus detection (n=154). Main outcome measures Detection of anti-SARS-CoV-2 antibodies in plasma. Results 943 of the 2847 participants (33%) reported belief they had had COVID-19, having experienced compatible symptoms (including 152 from Stream C). Among individuals reporting COVID-19 compatible symptoms, 466 (49%) were seronegative on both Nucleoprotein (Roche) and Spike-protein (EUROIMMUN) antibody assays. However, among the 268 individuals with prior positive SARS-CoV-2 tests, of whom 96% reported symptoms with onset a median of 63 days (IQR 52 to 75 days) prior to venesection, Roche and EUROIMMUN assays had 96.6% (95% CI 93.7% to 98.2%) and 93.3% (95% CI 89.6% to 95.7%) sensitivity respectively. Symptomatic but seronegative individuals had significantly earlier symptom onset dates than the symptomatic seropositive individuals, shorter illness duration and a much lower anosmia reporting frequency. Conclusions Self-reported belief of COVID-19 was common among our frontline worker cohort. About half of these individuals were seronegative, despite a high sensitivity of serology in this cohort, at least in individuals with previous positive PCR results. This is

compatible with non-COVID-19 respiratory disease during the COVID-19 outbreak having been commonly mistaken for COVID-19 within the key worker cohort studied."

Retrospective screening of routine respiratory samples revealed undetected community transmission and missed intervention opportunities for SARS-CoV-2 in the United Kingdom. Chappell JG et al., MedRxiv. (pre-print). "In the early phases of the SARS coronavirus type 2 (SARS-CoV-2) pandemic, testing focused on individuals fitting a strict case definition involving a limited set of symptoms together with an identified epidemiological risk, such as contact with an infected individual or travel to a high-risk area. To assess whether this impaired our ability to detect and control early introductions of the virus into the UK, we PCR-tested archival specimens collected on admission to a large UK teaching hospital who retrospectively were identified as having a clinical presentation compatible with COVID-19. In addition, we screened available archival specimens submitted for respiratory virus diagnosis, and dating back to early January 2020, for the presence of SARS-CoV-2 RNA. Our data provides evidence for widespread community circulation of SARS-CoV2 in early February 2020 and into March that was undetected at the time due to restrictive case definitions informing testing policy. Genome sequence data showed that many of these early cases were infected with a distinct lineage of the virus. Sequences obtained from the first officially recorded case in Nottinghamshire - a traveller returning from Daegu, South Korea - also clustered with these early UK sequences suggesting acquisition of the virus occurred in the UK and not Daegu. Analysis of a larger sample of sequences obtained in the Nottinghamshire area revealed multiple viral introductions, mainly in late February and through March. These data highlight the importance of timely and extensive community testing to prevent future widespread transmission of the virus."

Population-wide testing of SARS-CoV-2: country experiences and potential approaches in the EU/EEA and the United Kingdom. European Centre for Disease Prevention and Control. "Different population-wide testing approaches have already been used in various countries, including household testing, individual testing and the testing of incoming travellers, irrespective of whether or not they are displaying symptoms. Factors that need to be considered prior to implementation of any population-wide testing strategy which is to include all individuals are the epidemiological situation, costs, logistics, technical feasibility, resource availability, contract tracing capabilities, barriers to testing, potential false positivity and timely notification. Population-wide testing strategies can complement other public health measures and are more effective when paired with case isolation and contact tracing."

Objectives for COVID-19 testing in school settings. European Centre for Disease Prevention and Control. "The aim of this document is to provide an overview of major aspects of testing, contact tracing, contact identification and contact follow-up in school settings within the EU/EEA countries and the United Kingdom (UK)."

SARS-CoV-2 infection and transmission in educational settings: cross-sectional analysis of clusters and outbreaks in England. Ismail SA et al., MedRxiv. (pre-print). "BACKGROUND There are limited data on SARS-CoV-2 infection and transmission in educational settings. This information is critical for policy makers and practitioners to ensure the safety of staff, students and the wider community during the COVID-19 pandemic. METHODS Public Health England initiated enhanced national surveillance following the reopening of educational settings during the summer mini-term on 01 June 2020. COVID-19 related situations in educational settings across England were reviewed daily and followed-up until 31 July 2020. SARS-CoV-2 infection and outbreak rates were calculated

for staff and students attending early year settings, primary and secondary schools during June 2020. FINDINGS There were 67 single confirmed cases, 4 co-primary cases and 30 COVID-19 outbreaks during June 2020, with a strong correlation between number of outbreaks and regional COVID-19 incidence (0.51 outbreaks for each SARS-CoV-2 infection per 100,000 in the community; p=0.001). Overall, SARS-CoV-2 infections and outbreaks were uncommon across all educational settings. Staff members had an increased risk of SARS-CoV-2 infections compared to students in any educational setting, and the majority of cases linked to outbreaks were in staff. The probable transmission direction for the 30 confirmed outbreaks was: staff-to-staff (n=15), staff-to-student (n=7), student-to-staff (n=6) and student-to-student (n=2). INTERPRETATION SARS-CoV-2 infections and outbreaks were uncommon in educational settings during the first month after the easing of national lockdown in England. The strong correlation with regional SARS-CoV-2 incidence emphasises the importance of controlling community transmission to protect educational settings. Additional interventions should focus on reducing transmission in and among staff members."

Transmission dynamics of COVID-19 in household and community settings in the United Kingdom. Lopez Bernal J et al., MedRxiv. (pre-print). "Background: Households appear to be the highest risk setting for transmission of COVID-19. Large household transmission studies were reported in the early stages of the pandemic in Asia with secondary attack rates ranging from 5-30% but few large scale household transmission studies have been conducted outside of Asia. Methods: A prospective case ascertained study design based on the World Health Organization FFX protocol was undertaken in the UK following the detection of the first case in late January 2020. Household contacts of cases were followed using enhanced surveillance forms to establish whether they developed symptoms of COVID-19, became confirmed cases and their outcomes. Household secondary attack rates and serial intervals were estimated. Individual and household basic reproduction numbers were also estimated. The incubation period was estimated using known point source exposures that resulted in secondary cases. Results: A total of 233 households with two or more people were included with a total of 472 contacts. The overall household SAR was 37% (95% CI 31-43%) with a mean serial interval of 4.67 days, an R0 of 1.85 and a household reproduction number of 2.33. We find lower secondary attack rates in larger households. SARs were highest when the primary case was a child. We estimate a mean incubation period of around 4.5 days. Conclusions: High rates of household transmission of COVID-19 were found in the UK emphasising the need for preventative measures in this setting. Careful monitoring of schools reopening is needed to monitor transmission from children"

Diagnostic performance of chest CT in screening patients with suspected COVID-19 infection in a Western population. Krdzalic J et al., Br J Radiol. "Objective: To investigate the diagnostic performance of chest CT in screening patients suspected of Coronavirus disease 2019 (COVID-19) in a Western population. Methods: Consecutive patients who underwent chest CT because of clinical suspicion of COVID-19 were included. CT scans were prospectively evaluated by frontline general radiologists who were on duty at the time when the CT scan was performed and retrospectively assessed by a chest radiologist in an independent and blinded manner. Real-time reverse transcriptase-polymerase chain reaction was used as reference standard. Sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) were calculated. Sensitivity and specificity of the frontline general radiologists were compared to those of the chest radiologist using the McNemar test. Results: 56 patients were included. Sensitivity, specificity, PPV, and NPV for the frontline general radiologists were 89.3% [95% confidence interval (CI): 71.8%,

97.7%], 32.1% (95% CI: 15.9%, 52.4%), 56.8% (95% CI: 41.0%, 71.7%), and 75.0% (95% CI: 42.8%, 94.5%), respectively. Sensitivity, specificity, PPV, and NPV for the chest radiologist were 89.3% (95% CI: 71.8%, 97.7%), 75.0% (95% CI: 55.1%, 89.3%), 78.1% (95% CI: 60.0%, 90.7%), and 87.5% (95% CI: 67.6%, 97.3%), respectively. Sensitivity was not significantly different (p = 1.000), but specificity was significantly higher for the chest radiologist (p = 0.001). Conclusion: Chest CT interpreted by frontline general radiologists achieves insufficient screening performance. Although specificity of a chest radiologist appears to be significantly higher, sensitivity did not improve. A negative chest CT result does not exclude COVID-19. Advances in knowledge: Our study shows that chest CT interpreted by frontline general radiologists achieves insufficient diagnostic performance to use it as an independent screening tool for COVID-19. Although specificity of a chest radiologist appears to be significantly higher, sensitivity is still insufficiently high."

Differential occupational risks to healthcare workers from SARS-CoV-2 observed during a prospective observational study. Eyre DW et al., Epidemiology and Global health. "We conducted voluntary Covid-19 testing programmes for symptomatic and asymptomatic staff at a UK teaching hospital using naso-/oro-pharyngeal PCR testing and immunoassays for IgG antibodies. 1128/10,034(11.2%) staff had evidence of Covid-19 at some time. Using questionnaire data provided on potential risk-factors, staff with a confirmed household contact were at greatest risk (adjusted odds ratio [aOR] 4.82 [95%CI 3.45-6.72]). Higher rates of Covid-19 were seen in staff working in Covid-19-facing areas (22.6% vs. 8.6% elsewhere) (aOR 2.47 [1.99-3.08]). Controlling for Covid-19-facing status, risks were heterogenous across the hospital, with higher rates in acute medicine (1.52 [1.07-2.16]) and sporadic outbreaks in areas with few or no Covid-19 patients. Covid-19 intensive care unit staff were relatively protected (0.44 [0.28-0.69]), likely by a bundle of PPE-related measures. Positive results were more likely in Black (1.66 [1.25-2.21]) and Asian (1.51 [1.28-1.77]) staff, independent of role or working location, and in porters and cleaners (2.06 [1.34-3.15])."

Risk factors for positive and negative COVID-19 tests: a cautious and in-depth analysis of UK biobank data. Chadeau-Hyam M et al., Int J Epidemiol. "We conducted voluntary Covid-19 testing programmes for symptomatic and asymptomatic staff at a UK teaching hospital using naso-/oro-pharyngeal PCR testing and immunoassays for IgG antibodies. 1128/10,034(11.2%) staff had evidence of Covid-19 at some time. Using questionnaire data provided on potential risk-factors, staff with a confirmed household contact were at greatest risk (adjusted odds ratio [aOR] 4.82 [95%CI 3.45-6.72]). Higher rates of Covid-19 were seen in staff working in Covid-19-facing areas (22.6% vs. 8.6% elsewhere) (aOR 2.47 [1.99-3.08]). Controlling for Covid-19-facing status, risks were heterogenous across the hospital, with higher rates in acute medicine (1.52 [1.07-2.16]) and sporadic outbreaks in areas with few or no Covid-19 patients. Covid-19 intensive care unit staff were relatively protected (0.44 [0.28-0.69]), likely by a bundle of PPE-related measures. Positive results were more likely in Black (1.66 [1.25-2.21]) and Asian (1.51 [1.28-1.77]) staff, independent of role or working location, and in porters and cleaners (2.06 [1.34-3.15])."

What is the Preferred Screening Tool for COVID-19 in Asymptomatic Patients Undergoing a Surgical or Diagnostic Procedure? Huybens EM et al., World J Surg. "Introduction: Since the outbreak of COVID-19, measures were taken to protect healthcare staff from infection, to prevent infection of patients admitted to the hospital and to distribute PPE according to need. To assure the proper protection without overuse of limited supply of these equipments, screening of patients before surgical or diagnostic procedure was implemented. This study evaluates the results of this screening. Method: All patients screened for COVID-19 before procedure warranting either general,

locoregional anaesthesia or sedation were included. Screening included a symptom questionnaire by phone, PCR and HRCT chest testing. Surgical or procedural details were registered together with actions taken based on screening results. Results: Three hundred ninety-eight screenings were performed on 386 patients. The symptom questionnaire was completed in 72% of screenings. In 371 screenings, PCR testing was performed and negative. HRCT chest found 18 cases where COVID-19 could not be excluded, with negative PCR testing. Three patients had their surgery postponed due to inconclusive screening, and additional measures were taken in three other patients. There were incidental findings in 14% of HRCT chest scans. Discussion: Pre-operative screening will differentiate if PPE is needed for procedures and which patients can safely have elective surgery during this COVID-19 pandemic and in the times to come. HRCT chest has no additional value in the pre-operative screening of asymptomatic patients. Screening can be performed with a symptom questionnaire, and additional screening with PCR testing in high-risk patient groups should be considered."

Perceived versus proven SARS-CoV-2-specific immune responses in health-care professionals. Behrens GMN et al., Infection. "There have been concerns about high rates of thus far undiagnosed SARS-CoV-2 infections in the health-care system. The COVID-19 Contact (CoCo) Study follows 217 frontline health-care professionals at a university hospital with weekly SARS-CoV-2-specific serology (IgA/IgG). Study participants estimated their personal likelihood of having had a SARS-CoV-2 infection with a mean of 21% [median 15%, interquartile range (IQR) 5–30%]. In contrast, anti-SARS-CoV-2 IgG prevalence was about 1–2% at baseline. Regular anti-SARS-CoV-2 IgG testing of health-care professionals may aid in directing resources for protective measures and care of COVID-19 patients in the long run."

COVID-19 clusters and outbreaks in occupational settings in the EU/EEA and the UK. European Centre for Disease Prevention and Control. "Outbreaks and clusters of COVID-19 in a variety of occupational settings have been reported since the start of the pandemic in the European Union, the European Economic Area (EU/EEA) and the United Kingdom (UK). Fifteen EU/EEA countries and the UK reported 1 376 clusters of COVID-19 in occupational settings which occurred between March and early July 2020. Workers in occupations which bring them in close physical proximity to other people (co-workers, patients, customers, etc.), particularly when working in indoor settings or with shared transport or accommodation, are more exposed to and at higher risk of COVID-19 in the absence of mitigation measures. The majority of occupational COVID-19 clusters reported were from the health sector, however testing of healthcare workers has been prioritised in all EU/EEA countries and the UK. Large numbers of clusters were also reported from the food packaging and processing sectors, in factories and manufacturing, and in office settings. Fewer clusters were reported from the mining sector, however some of these clusters have been large. Occupations are commonly linked to socio-economic status which can also affect the individual's risk of COVID-19. Moreover, workers in many essential sectors cannot work from home, which may explain why certain occupations have been shown to have a higher risk of COVID-19 infection and mortality than others. Increased focus on testing for COVID-19 in workplace settings, combined with robust polices on physical distancing, hygiene and cleaning, appropriate use of personal protective equipment (PPE) where necessary and hand hygiene, particularly in closed settings and situations where workers have extended contact or share transportation and accommodation, will help prevent further COVID-19 outbreaks. Robust surveillance and contact tracing are essential, as are clear protocols on how to address outbreaks when they are detected. Within the EU there is a body

of occupational safety and health legislation in place, including legislation on the protection of workers from biological agents at work. This legislation sets out technical and organisational measures to be implemented by employers at work places following a workplace risk assessment. Specific guidance is available at EU and national level on how to protect workers and this includes the sectors and occupations where clusters have occurred. Collaboration between public health and occupational health and safety agencies at local and national level will help with communication and mitigation of the spread of COVID-19 in occupational settings and communities in the EU/EEA and the UK.

Broader impacts on health outcomes

Rapid reviews

Long-term conditions

Impact and mortality of COVID-19 on people living with dementia: cross-country report.
Suárez-González A et al., LTC Covid. (updated 19/8/20). "We have collected data on impact and mortality of COVID-19 in people living with dementia in 9 countries: The United Kingdom (UK), Spain, Ireland, Italy, Australia, the United States (US), India, Kenya and Brazil. o The share of people whose deaths were linked to COVID-19 in care homes who had dementia ranges from 29% to 75% across those countries. Within countries, people with dementia account for 25% of all COVID-19 related deaths in England and Wales, 31% in Scotland and 19% in Italy. We did not find nation-level data for the rest of the countries. The high rates of deaths in people living with dementia seem to be linked to death rates in care homes, where many residents have dementia. Direct comparison between countries is not possible due to differences in systems of information: the types of data collected and ways in which they are reported, metrics used and varying definitions of COVID-19 cases and care home facilities. The different approaches to collecting and reporting data across different administrative or autonomous regions within the same nation also hinders the extraction of national-level figures in some countries (e.g. the 4 countries in the UK, the 17 Autonomous Communities in Spain and the different administrative regions in Italy). In many places, the basic human rights of people with dementia may have been compromised during the pandemic. These rights include access to Intensive Care Units, hospital admissions, health care and palliative care. The controversial ban on visits (including spouses and care partners) to care homes across the world, have kept people with dementia detached from essential affective bonds and provision of family care for many months. There is now a pressing need and also an opportunity for innovation, looking at new ways of providing services such as allowing visits to care homes and access to healthcare. Excellent examples of both are contained in this report. Guidelines and tools to support institutions and practitioners to respond better to the needs of people with dementia during the pandemic are needed as a matter of urgency. Confinement, isolation and many of the challenges brought about by the pandemic are detrimental to the cognitive and mental health symptoms in people with dementia across the world, both those living in the community and care homes1 . This report offers a list of short-term and long-term actions needed to ensure that people with dementia are not being left behind in this pandemic or future ones."

Mental health – public

Effects of COVID-19 on Anxiety, Depression and Other Mental Health Issues: A worldwide scope review. **Machado DB et al., Preprint.** "BACKGROUND: The COVID-19 pandemic has spread across the world and, along with it, a considerable degree of fear and uncertainties that impact on various aspects of societal life, including on people's Mental Health (MH). Understanding how the COVID-19 pandemic affects MH can help to implement interventions and adequate public policies, providing more effective responses to mitigate its effects. OBJECTIVES: To summarize the scientific evidence on the possible influence of the Covid-19 pandemic on MH, critically evaluating the methods and scientific validity of the studies found, in addition to summarizing the recommendations on strategic measures to reduce the impact of COVID-19 on MH. METHODOLOGY: The current scoping review was conducted from a screening of 465 articles on COVID-19 and MH outcomes, based on the main database of scientific references on health, assessed throughout PubMed. RESULT: Of the 43 papers selected for summary and critical analysis 77% (n=33) indicated a relationship between the COVID-19 pandemic and anxiety symptoms, 56% (n=26) with depression or depressive symptoms, seven with changes in sleep pattern and seven with obsessive behaviours or Obsessive Compulsive Disorder. In addition to studies that showed an influence of the COVID-19 pandemic on trauma or post-traumatic stress disorder (PTSD), psychological distress, stress and fear. Most of the studies were carried out in China, and primarily evaluated the presence of anxiety and depression, through scales and questionnaires. Health professionals and the elderly were cited among the most affected population groups. CONCLUSIONS: Most studies presented significant methodological limits. Investments in new research, with controlled studies, including representative and randomized samples, and longitudinal follow-up, are necessary, to further explore the relationships between the COVID-19 pandemic and people's MH and long-term effects. Pending such studies, given the effects (during and after) of previous epidemics on MH, government measures need to be implemented to reduce the potential catastrophic effects of the COVID-19 pandemic on MH, and the burden that will remain after the pandemic. The timely identification of psychological distress and the identification of MH needs among populations, facilitate the development of targeted psychological interventions, in addition to the organization of health services and systems, during the pandemic."

Prevalence of Psychological Morbidities Among General Population, Healthcare Workers and COVID-19 patients Amidst the COVID-19 Pandemic: A Systematic Review and Meta-Analysis. **Krishnamoorthy Y et al., Psychiatry Res.** "This review was done to synthesise the existing evidence on the prevalence of various psychological morbidities among general public, healthcare workers and COVID-19 patients amidst this pandemic situation. Systematic searches were conducted in various databases and search engines such as Medline, Chinese national knowledge infrastructure, Cochrane library, ScienceDirect, and Google Scholar from inception until 22 April 2020. Newcastle Ottawa scale was used to assess the quality of included studies. We carried out a meta-analysis with random-effects model and reported pooled prevalence with 95% confidence intervals (CIs). A total of 50 studies were included in the review. Only seven studies (14%) had low risk of bias. Pooled prevalence rate of psychological morbidities includes poor sleep quality (40%), stress (34%), psychological distress (34%), insomnia (30%), post-traumatic stress symptoms (27%), anxiety (26%), depression (26%). Pooled prevalence rate of psychological morbidities with respect to impact of event due to COVID-19 pandemic was 44% (95%CI-42% to 47%). The burden of these psychological morbidities was highest among the COVID-19 patients followed by healthcare workers and general population."

Overview on Children Mental Health Status during Coronavirus Disease: Expressing How to Support. **Mohammadi GH et al., Int J Pediatr.** "Background: Coronavirus pandemic puts children in a more critical mental status compared to adults. Some symptoms of children's mental disorders include extreme dependence, anxiety, fear, anger, and impatience. The present study aimed to review the studies, which have investigated the effects of coronavirus and its consequences on mental health, particularly the children, and provide some effective strategies to support them."

Interpersonal Violence Against People With Disabilities: Additional Concerns and Considerations in the COVID-19 Pandemic. **Lund EM, Rehabilitation Psychology.** "Objective/Purpose: The objective of this article is to provide information about the ways in which the novel coronavirus 2019 (COVID-19) pandemic may affect the ongoing public health issue of violence against people with disabilities and how rehabilitation psychologists and other providers can address these concerns in their practice. Method: This article reviews the literature on violence against people with disabilities as well as emerging literature on the COVID-19 pandemic and its social and medical consequences. Results: The COVID-19 pandemic magnifies existing issues and barriers facing people with disabilities who are experiencing interpersonal violence. These issues include reliance on the perpetrator for care and assistance, barriers to reporting abuse and seeking help, fear of retaliation and other negative consequences if abuse is reported, emotional abuse related to disability, and exacerbation of secondary physical and mental health sequalae of abuse. Conclusions/Implications: The COVID-19pandemic and its consequences enhance the already increased risk for abuse among people with disabilities. Providers who work with individuals with disabilities should address these issues at both the individual client and systems levels."

Emerging evidence

Public health

Penetrating trauma during a global pandemic: Changing patterns in interpersonal violence, self-harm and domestic violence in the Covid-19 outbreak. **Olding J et al., The Surgeon.** "Introduction: The restrictions imposed on social activity in response to the Covid-19 pandemic have had a profound impact globally. In the UK, the NHS was placed on a war-footing, with elective surgery, face-to-face outpatient clinics, and community care facilities all scaled back as a temporary measure to redistribute scarce resources. There has been concern during this period over increasing levels of violence in the domestic setting, as well as self-harm. Methods: Data was collected on all patients presenting with traumatic penetrating injuries during the 'lockdown' period of 23rd March to 29th April 2020. Demographics and injury details were compared with the same period in the two preceding years. Results: Overall trauma fell by 35% compared with the previous year. Over one in four penetrating injuries seen were a result of self-harm, which was significantly higher than in previous years (11% in 2019, 2% in 2018). There were two cases of injuries due to domestic violence, while a total of 4 cases of injury arose in separate violent domestic incidents. Self-harm commonly involved penetrating injury to the neck. Discussion: Our centre has seen an increase in the proportion of penetrating injuries as a result of both self-harm and violence in the domestic setting. The number of penetrating neck injury cases, which can represent suicidal intent or a major presentation of psychiatric illness, is of particular concern. We must further investigate the effect of social restrictions on violent injury, and how home confinement may influence a changing demographic picture of victims."

Child safety, protection, and safeguarding in the time of COVID-19 in Great Britain: Proposing a conceptual framework. Levine DT et al., Child Abuse & Neglect. "BACKGROUND: Great Britain has the highest coronavirus death rate in Europe. While the pandemic clearly poses a risk to the lives and wellbeing of vulnerable groups, necessary public health measures taken to delay or limit the spread of the virus have led to distinctive challenges for prevention, family support, court processes, placement and alternative care. The pandemic has also come about at a time when statutory changes to partnerships have led to a reduction in the importance of educational professional representation in the new formulation in England and Wales. OBJECTIVES: In this discussion paper, we propose a novel and pragmatic conceptual framework during this challenging time. PARTICIPANTS: We consulted with 8 education professionals and 4 field-based student social workers. SETTING: Bodies responsible for safeguarding have been working quickly to develop new approaches to fulfilling their responsibilities, for example through online home visits and case conferences. However, some communities have been highlighted as experiencing particular challenges because of the pandemic and its impacts. Protection of vulnerable children is increasingly dependent on individualised - and often pathologising - practice with a lack of emphasis on the importance of the social. Holistic consideration of the child is side-lined. RESULTS: Our framework comprises two phases: pandemic and aspirational. CONCLUSION: The framework illuminates the importance of interconnected sectors and multi-agency working, the need for resilient and adaptable support systems, and the need to promote the importance of children's rights and voices to be heard above the noise of the pandemic."

Behavioral Health and Service Usage During the Coronavirus Disease 2019 Pandemic Among Emerging Adults Currently or Recently Experiencing Homelessness. Tucker JS et al. J Adolesc Health. "Purpose: This study provides information on how the coronavirus disease 2019 (COVID-19) outbreak is affecting emerging adults currently or recently homeless in terms of engagement in protective behaviors, mental health, substance use, and access to services. Methods: Ninety participants in an ongoing clinical trial of a risk reduction program for homeless, aged 18–25 years, were administered items about COVID-19 between April 10 and July 9, 2020. Results: Most participants reported engaging in COVID-19 protective behaviors. Past week mental health symptoms were reported by 38%–48% of participants, depending on symptoms. Among those who used substances before the outbreak, 16%–28% reported increased use of alcohol, tobacco, and marijuana. More than half of the participants reported increased difficulty meeting basic needs (e.g., food), and approximately 32%–44% reported more difficulty getting behavioral health services since the outbreak. Conclusions: Innovative strategies are needed to address the increased behavioral health needs of young people experiencing homelessness during events such as the COVID-19 outbreak."

Mental health

Impact of the COVID-19 pandemic and initial period of lockdown on the mental health and well-being of adults in the UK. White RG and Van Der Boor C, BJPsych Open. "The impact of the COVID-19 pandemic on mental health and well-being were assessed in a convenience sample of 600 UK adults, using a cross-sectional design. Recruited over 2 weeks during the initial phase of lockdown, participants completed an online survey that included COVID-19-related questions, the Hospital Anxiety and Depression Scale, the World Health Organization (Five) Well-Being Index and the Oxford Capabilities Questionnaire for Mental Health. Self-isolating before lockdown, increased

feelings of isolation since lockdown and having COVID-19-related livelihood concerns were associated with poorer mental health, well-being and quality of life. Perceiving increased kindness, community connectedness and being an essential worker were associated with better mental health and well-being outcomes."

Time and Covid-19 stress in the lockdown situation: Time free, «Dying» of boredom and sadness. Droit-Volet S et al., PLoS ONE. "A lockdown of people has been used as an efficient public health measure to fight against the exponential spread of the coronavirus disease (Covid-19) and allows the health system to manage the number of patients. The aim of this study (clinicaltrials.gov NCT 0430818) was to evaluate the impact of both perceived stress aroused by Covid-19 and of emotions triggered by the lockdown situation on the individual experience of time. A large sample of the French population responded to a survey on their experience of the passage of time during the lockdown compared to before the lockdown. The perceived stress resulting from Covid-19 and stress at work and home were also assessed, as were the emotions felt. The results showed that people have experienced a slowing down of time during the lockdown. This time experience was not explained by the levels of perceived stress or anxiety, although these were considerable, but rather by the increase in boredom and sadness felt in the lockdown situation. The increased anger and fear of death only explained a small part of variance in the time judgment. The conscious experience of time therefore reflected the psychological difficulties experienced during lockdown and was not related to their perceived level of stress or anxiety."

The Impact of Sheltering in Place During the COVID-19 Pandemic on Older Adults' Social and Mental Well-Being. Krendl AC and Perry BL, The Journals of Gerontology. "Objectives: We examined whether social isolation due to the COVID-19 shelter-in-place orders was associated with greater loneliness and depression for older adults, and, if so, whether declines in social engagement or relationship strength moderated that relationship. Methods: Between April 21 and May 21, 2020, 93 older adults in the United States who had completed measures characterizing their personal social networks, subjective loneliness, and depression 6–9 months prior to the pandemic completed the same measures via phone interview, as well as questions about the impact of the pandemic on their social relationships. Results: Older adults reported higher depression and greater loneliness following the onset of the pandemic. Loneliness positively predicted depression. Perceived relationship strength, but not social engagement, moderated this relationship such that loneliness only predicted depression for individuals who became closer to their networks during the pandemic. For those who felt less close, depression was higher irrespective of loneliness. Discussion: The COVID-19 pandemic negatively affected older adults' mental health and social well-being in the short term. Potential long-term impacts are considered."

Mental Health During the COVID-19 Pandemic: Effects of Stay-at-Home Policies, Social Distancing Behavior, and Social Resources. Marroquín B et al., Psychiatry Research. "Social distancing is the most visible public health response to the COVID-19 pandemic, but its implications for mental health are unknown. In a nationwide online sample of 435 U.S. adults, conducted in March 2020 as the pandemic accelerated and states implemented stay-at-home orders, we examined whether stay-at-home orders and individuals' personal distancing behavior were associated with symptoms of depression, generalized anxiety disorder (GAD), intrusive thoughts, insomnia, and acute stress. Stay-at-home order status and personal distancing were independently associated with higher symptoms, beyond protective effects of available social resources (social

support and social network size). A subsample of 118 participants who had completed symptom measures earlier in the outbreak (February 2020) showed increases in depression and GAD between February and March, and personal distancing behavior was associated with these increases. Findings suggest that there are negative mental health correlates of social distancing, which should be addressed in research, policy, and clinical approaches to the COVID-19 pandemic."

COVID stress syndrome: Concept, structure, and correlates. Taylor S et al., Depress Anxiety.
"Background: Research shows that the COVID Stress Scales have a robust multifactorial structure, representing five correlated facets of COVID-19-related distress: (a) Fear of the dangerousness of COVID-19, which includes fear of coming into contact with fomites potentially contaminated with SARSCoV2, (b) worry about socioeconomic costs of COVID-19 (e.g., worry about personal finances and disruption in the supply chain), (c) xenophobic fears that foreigners are spreading SARSCoV2, (d) traumatic stress symptoms associated with direct or vicarious traumatic exposure to COVID-19 (nightmares, intrusive thoughts, or images related to COVID-19), and (e) COVID-19-related compulsive checking and reassurance seeking. These factors cohere to form a COVID stress syndrome, which we sought to further delineate in the present study. Methods: A population-representative sample of 6,854 American and Canadian adults completed a self-report survey comprising questions about current mental health and COVID-19-related experiences, distress, and coping. Results: Network analysis revealed that worry about the dangerousness of COVID-19 is the central feature of the syndrome. Latent class analysis indicated that the syndrome is quasi-dimensional, comprising five classes differing in syndrome severity. Sixteen percent of participants were in the most severe class and possibly needing mental health services. Syndrome severity was correlated with preexisting psychopathology and with excessive COVID-19-related avoidance, panic buying, and coping difficulties during self-isolation. Conclusion: The findings provide new information about the structure and correlates of COVID stress syndrome. Further research is needed to determine whether the syndrome will abate once the pandemic has passed or whether, for some individuals, it becomes a chronic condition."

Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic — United States, June 24–30, 2020. Czeisler ME et al., Morbidity and Mortality Weekly Report.
"The coronavirus disease 2019 (COVID-19) pandemic has been associated with mental health challenges related to the morbidity and mortality caused by the disease and to mitigation activities, including the impact of physical distancing and stay-at-home orders. Symptoms of anxiety disorder and depressive disorder increased considerably in the United States during April–June of 2020, compared with the same period in 2019 (1,2). To assess mental health, substance use, and suicidal ideation during the pandemic, representative panel surveys were conducted among adults aged ≥18 years across the United States during June 24–30, 2020. Overall, 40.9% of respondents reported at least one adverse mental or behavioral health condition, including symptoms of anxiety disorder or depressive disorder (30.9%), symptoms of a trauma- and stressor-related disorder (TSRD) related to the pandemic† (26.3%), and having started or increased substance use to cope with stress or emotions related to COVID-19 (13.3%). The percentage of respondents who reported having seriously considered suicide in the 30 days before completing the survey (10.7%) was significantly higher among respondents aged 18–24 years (25.5%), minority racial/ethnic groups (Hispanic respondents [18.6%], non-Hispanic black [black] respondents [15.1%]), self-reported unpaid caregivers for adults§ (30.7%), and essential workers (21.7%)."

Exacerbation of Physical Intimate Partner Violence during COVID-19 Lockdown. Gosangi B et al., Radiology (In press). "Background: Intimate partner violence (IPV) is a global social and public health problem but published literature regarding the exacerbation of physical IPV during the COVID-19 pandemic is lacking. Purpose: To assess the incidence, patterns, and severity of injuries in victims of intimate partner violence (IPV) during the COVID-19 pandemic in 2020, compared with the prior three years. Materials and Methods: The demographics, clinical presentation, injuries, and radiological findings of patients reporting physical abuse arising from IPV during the statewide COVID-19 pandemic between March 11th and May 3rd, 2020 were compared with the same period over the past three years. Pearson's chi-squared and Fischer's exact have been used for analysis. Results: 26 physical IPV victims from 2020 (37+/-13 years, 25 women) were evaluated and compared with 42 physical IPV victims (41+/-15 years, 40 women) from 2017-2019. While the overall number of patients reporting IPV decreased during the pandemic, the incidence of physical IPV was 1.8 times greater (95% confidence interval [CI] 1.1 to 3.0, p = 0.01). The total number of deep injuries was 28 during 2020 versus 16 from 2017-2019; the number of deep injuries per victim was 1.1 during 2020 compared with 0.4 from 2017-2019 (p<0.001). The incidence of high-risk abuse defined by mechanism was greater by 2 times (95% CI 1.2 to 4.7, p= 0.01). Patients with IPV in during the COVID-19 pandemic were more likely to be ethnically white, 17 (65%) victims in 2020 were ethnically white compared to 11 (26%) in the prior years (p=0.007). Conclusion: There was a higher incidence and severity of physical intimate partner violence (IPV) during the COVID 19 pandemic compared with the prior three years. These results suggest that IPV victims delayed reaching out to health care services until the late stages of the abuse cycle during the COVID-19 pandemic."

COVID-19-related fear and stress among individuals who experienced child abuse: The mediating effect of complex posttraumatic stress disorder. Tsur N and Abu-Raiya H, Child Abuse & Neglect. "Background: The COVID-19 pandemic exposes individuals not only to health-related risks, but also to psychosocial fear and acute stress. Previous studies reveal that individuals who experienced child abuse (CA), especially those who suffer from complex posttraumatic stress disorder (CPTSD), are at a higher risk of reacting with fear and stress when faced with stressful life-events. Objective: To test whether exposure to CA is implicated in a higher risk of COVID-19-related fear and acute stress, and whether CPTSD intervenes in such processes. Participants and settings: A convenience sample of 837 adults participated in the study during the first peak of COVID-19 in Israel. Methods: Participants completed self-report questionnaires, assessing child physical, sexual and emotional abuse, CPTSD (ITQ), COVID-19-related acute stress disorder (COVID-19 ASD; ASDS) and fear of COVID-19. Results: Bivariate analyses showed that participants who experienced CA were higher than participants who did not experience CA in COVID-19 ASD (p = .032), but not in fear of COVID-19 (p = .65). Mediation analyses demonstrated two significant paths: in the first, CA was associated with elevated fear of COVID-19 (effect = .061, .059; p < 0.05) and COVID-19 ASD (effect = .14, .084; p < 0.05) through the mediation of CPTSD; in the second path, when controlling for the mediation of CPTSD, CA was associated with reduced fear of COVID-19 (effect = −.15; p = 0.001), and COVID-19 ASD (effect = −.12; p = 0.024). Conclusions: The findings reveal a complex pattern, indicating that CPTSD may be a risk factor for elevated levels of COVID-19 distress among individuals who experienced CA. However, some CA survivors may express reduced COVID-19 distress."

Commentaries

Mental health

Debate: Recognising and responding to the mental health needs of young people in the era of COVID-19. Danese A & Smith P, Child and Adolescent Mental Health.

Emerging from COVID-19: prioritising the burden of loneliness in older people. Armitage R and Nellums LB, British Journal of General Practice.

"The post-COVID era": challenges in the treatment of substance use disorder (SUD) after the pandemic. López-Pelayo H et al. BMC Med.

COVID-19 stress and substance use: Current issues and future preparations. McKay D and Asmundson GJG, J Anxiety Disord.

Psychosocial impact of COVID-19 pandemic lockdown on people living with eye diseases in the UK. Ting DSJ et al., Eye.

Substance use and abuse associated with the behavioral immune system during COVID-19: The special case of healthcare workers and essential workers. McKay D and Asmundson GJG, Addict Behav.

'Healthcare Heroes': problems with media focus on heroism from healthcare workers during the COVID-19 pandemic. Cox CL, J Med Ethics.

Impact on non-Covid care

Commentary from the collaboration

The impact of Covid-19 on the use of digital technology in the NHS. Hutchings R, Nuffield Trust (published online 27/8/20).

Chart of the week: The proportion of people waiting more than 18 weeks for planned treatment has rocketed since Covid-19. Reed S & Scobie S. Nuffield Trust. (published online 19/8/20).

Building the evidence base on video consultations: Three priorities for further research. Jones B and Scott J, The Health Foundation. (published online 26/8/20).

A GP's perspective on COVID-19. Q&A with Dr Becks Fisher. The Health Foundation. (published online 27/8/20).

Guidance

COVID-19: Guidance for the remobilisation of services within health and care settings: Infection prevention and control recommendations. Department of Health & Social Care (DHSC), Public Health Wales (PHW), Public Health Agency (PHA) Northern Ireland, Health Protection Scotland (HPS)/National Services Scotland, Public Health England (PHE) and NHS England.

Hospital discharge service: policy and operating model. Department of Health & Social Care (21/08/20).

Rapid reviews

Covid-19 and the 'new normal': are remote video consultations here to stay? Bidmead E & Marshall A. British Medical bulletin, ldaa025. "Introduction: During the UK Covid-19 lockdown, video consultations (telemedicine) were encouraged. The extent of usage, and to which concerns to earlier implementation were set aside, is unknown; this is worthy of exploration as data becomes available. Source of data: Sources of data are as follows: published case studies, editorials, news articles and government guidance. Areas of Controversy: Despite policy impetus and successful pilots, telemedicine has not been adopted at scale. Growing points: Increased use of telemedicine during the Covid-19 crisis presents opportunities to obtain robust evidence of issues and create service transformation effectively. Areas timely for developing research: Examination of telemedicine use during the Covid-19 crisis to ensure that the benefits and usage continue into the post-lockdown, 'new normal' world."

Outpatient Care

Telemedicine and Orthopaedic Surgery: The COVID-19 Pandemic and Our New Normal. Lanham NS et al., JBJS Rev. " Telemedicine can serve as a medium for patient evaluation, monitoring, and interpretation of diagnostic imaging and other tests. Advantages of telemedicine include improved access to care, cost-effectiveness, and efficiency. Challenges remain regarding more widespread adoption of telemedicine and involve reimbursement as well as regulatory support. The coronavirus disease 2019 (COVID-19) pandemic has led to a paradigm shift in telemedicine that is here to stay. Patient satisfaction is a key component of telemedicine and will drive its evolution."

Mental health care

Addictions in the COVID-19 era: Current evidence, future perspectives a comprehensive review. Mallet J et al., Progress in Neuro-Psychopharmacology and Biological Psychiatry. "Background: In the context of the COVID-19 worldwide pandemic, an up-to-date review of current challenges in addictions is necessary. While large scale disasters may have an impact on substance use and addictions, the use of some substances is also likely to modify the risk of COVID-19 infection or course. Many countries have imposed lockdowns. Whether this quarantine or the end of lockdown measures will have an impact on substance use is discussed. The aim of this review is to gather knowledge for clinicians and to guide public health policies during/after lockdown. Methods: PubMed was reviewed in August 6th (2020), to determine the current evidences and observations concerning the addictions and SARS-CoV2. We used all the names of the severe acute respiratory syndrome of coronavirus 2 (SARS-CoV2 previously 2019 nCoV), the name of the coronavirus disease 2019 (COVID-19), and common substances of abuse. For the physiopathological parts, searches were conducted using key words such as "infection" or "pneumonia". For the lockdown effects, key words such as "quarantine", "disaster" or "outbreak" were used. Results: Overall, pathophysiological data showed an increased risk of infections for individuals with Substance Use Disorders (SUD) and a possible protective role of nicotine. During lockdown, there is a substantial risk of increasing SUDs. Individuals with opioid use disorder are particularly at risk of relapse or of involuntary withdrawal. After lockdown, increase of use may be observed as far as years after. Individuals with addictions are at higher risk of multimorbidity and mortality during COVID outbreak. Conclusion: This review describes useful strategies in clinical practice, including a systematic assessment of addiction comorbidity during this almost worldwide lockdown/pandemic. This review also highlights important areas for future research."

End of Life Services

What enables or hinders people in the community to make or update advance care plans in the context of Covid-19, and how can those working in health and social care best support this process? Selman L et al., Oxford COVID-19 Evidence Service, Centre for Evidence-Based Medicine. "In the context of COVID-19, some known barriers to advance care planning (ACP) in community settings have worsened, while others have improved. The same is true for known enablers of ACP (Table 1).COVID-19 has raised public awareness of ACP, increased the importance of and attention to IT systems, motivated the development of new guidelines and templates, and rapidly shifted 'business as usual' processes and protocols. This presents opportunities to improve ACP in the community. However, existing guidelines and resources are to a major extent clinician-focused; there are few video- and web-based ACP resources for the public and those that exist are scattered and piecemeal. This is a concern given good quality evidence that online and video ACP interventions are beneficial, particularly among people with limited English proficiency, poor health literacy and/or from otherwise disadvantaged communities. In the context of COVID-19, and to reduce inequalities in access to ACP, we recommend national investment in evidence-based, public-facing resources and integrated systems to support ACP, building on existing resources. Alongside this investment, simultaneous, interconnected strategies are needed, underpinned by healthcare policy: training for those working in health and social care, better coordination of electronic medical record systems, and public education and awareness raising."

Emerging evidence

Primary care

Private video-consultation services and the future of primary care. Salisbury C et al., Journal of Medical Internet Research. "In many countries, private companies provide primary care services based predominantly on offering video-consultations via smartphone. One example is Babylon GP at Hand, which offers video-consultations to NHS patients, 24 hours a day, and has grown very rapidly in London over the last three years. The development of this type of service has been controversial, particularly in the United Kingdom, but there has been very little formal published evaluation of these services in any country. This article outlines the main controversies about the use of privately provided video-consultation services for primary care and shows how they are informed by the limited evaluations which have been conducted, particularly the evaluation of Babylon GP at Hand. The article outlines the advantages of these services in terms of convenience, speed of access, the ability to consult without travelling or face-to-face patient-doctor contact, and the possibility of recruiting doctors who cannot work in conventional settings or do not live near the patients. It also highlights the concerns and uncertainties about quality and safety, demand, fragmentation of care, the impact on other health services, efficiency, and equity. There are questions about whether private primary care services based on video-consultations have a sustainable business model and whether they will undermine other health care providers. During the recent Covid-19 pandemic the use of video-consulting has become more widespread within conventional primary care services, and this is likely to have lasting consequences for the future delivery of primary care. It is important to understand the extent to which lessons from the evaluation of Babylon GP at Hand and other private services based on a 'video-first' model are relevant to the use of video-consulting within conventional general practices, and to consider the advantages and disadvantages of these

developments, before video-consultation based services in primary care become more widely established."

Reorganisation of primary care for older adults during COVID-19: a cross-sectional database study in the UK. Joy M et al., Br J Gen Pract. "Background: The coronavirus disease 2019 (COVID-19) pandemic has resulted in a rapid change in workload across healthcare systems. Factors related to this adaptation in UK primary care have not yet been examined. Aim: To assess the responsiveness and prioritisation of primary care consultation type for older adults during the COVID-19 pandemic. Design and setting: A cross-sectional database study examining consultations between 17 February and 10 May 2020 for patients aged ≥65 years, drawn from primary care practices within the Oxford Royal College of General Practitioners (RCGP) Research and Surveillance Centre (RSC) sentinel network, UK. Method: The authors reported the proportion of consultation type across five categories: clinical administration, electronic/video, face-to-face, telephone, and home visits. Temporal trends in telephone and face-to-face consultations were analysed by polypharmacy, frailty status, and socioeconomic group using incidence rate ratios (IRR). Results: Across 3 851 304 consultations, the population median age was 75 years (interquartile range [IQR] 70-82); and 46% (n = 82 926) of the cohort (N = 180 420) were male. The rate of telephone and electronic/video consultations more than doubled across the study period (106.0% and 102.8%, respectively). Face-to-face consultations fell by 64.6% and home visits by 62.6%. This predominantly occurred across week 11 (week commencing 9 March 2020), coinciding with national policy change. Polypharmacy and frailty were associated with a relative increase in consultations. The greatest relative increase was among people taking ≥10 medications compared with those taking none (face-to-face IRR 9.90, 95% CI = 9.55 to 10.26; telephone IRR 17.64, 95% CI = 16.89 to 18.41). Conclusion: Primary care has undergone an unprecedented in-pandemic reorganisation while retaining focus on patients with increased complexity."

Long Term Conditions Management

Has COVID-19 Delayed the Diagnosis and Worsened the Presentation of Type 1 Diabetes in Children? Rabbone I et al., Diabetes Care. "OBJECTIVE: To evaluate whether the diagnosis of pediatric type 1 diabetes or its acute complications changed during the early phase of the coronavirus disease 2019 (COVID-19) pandemic in Italy. RESEARCH DESIGN AND METHODS: This was a cross-sectional, Web-based survey of all Italian pediatric diabetes centers to collect diabetes, diabetic ketoacidosis (DKA), and COVID-19 data in patients presenting with new-onset or established type 1 diabetes between 20 February and 14 April in 2019 and 2020. RESULTS: Fifty-three of 68 centers (77.9%) responded. There was a 23% reduction in new diabetes cases in 2020 compared with 2019. Among those newly diagnosed patient who presented in a state of DKA, the proportion with severe DKA was 44.3% in 2020 vs. 36.1% in 2019 (P 5 0.03). There were no differences in acute complications. Eight patients with asymptomatic or mild COVID-19 had laboratory-confirmed severe acute respiratory syndrome coronavirus 2. CONCLUSIONS: The COVID-19 pandemic might have altered diabetes presentation and DKA severity. Preparing for any "second wave" requires strategies to educate and reassure parents about timely emergency department attendance for non–COVID-19 symptoms."

Outpatient Care

Following COVID-19 clinicians now overwhelmingly accept virtual clinics in Oral and Maxillofacial Surgery. Al-Izzi T et al. Br J Oral Maxillofac Surg."Virtual consultations and telemedicine have been an emerging trend in modern medicine, which has seen acceleration in uptake across a wide range of specialties as a result of the COVID-19 pandemic. Following on from previous work by the authors in 2019 examining clinician and patient appetite for virtual consultations in maxillofacial surgery, we sought to evaluate whether there had been a change in attitudes as a result of the pandemic. A clinician survey of the consultants at a large teaching hospital and prospective data collection of virtual consultation outcomes was carried out from the inception of UK government lockdown measures to tackle the pandemic. From 151 consultations, 149 (98.7%) successfully established a working diagnosis and treatment plan and/or concluded an episode of patient care, without the need to convert to a face-to-face encounter between clinician and patient. The total number of consultations (virtual or otherwise) was significantly lower than the same time period the preceding year however (1,223 compared with 465 consultations). All consultants surveyed felt the pandemic had altered their opinion of virtual clinics and their place in maxillofacial surgery but cited a number of issues. Further work is required to understand the driving forces behind staff attitudes and the long-term adoption of telemedicine within the specialty as services return to some sense of normalcy."

Elective Care

COVID-19 and surgery: A thematic analysis of unintended consequences on performance, practice and surgical training. Whelehan DF et al., Surgeon. "Purpose: The shift in the national focus and allocation of resources to the management of COVID19 has led to significant changes to surgical practice including the delay of elective surgery. The aim of this study was to explore the implications of such changes on surgeons. Method: Using a qualitative study design, semi-structured interviews were conducted with general surgery consultants and non-consultant hospital doctors from a major tertiary hospital in the Dublin region between March-May 2020. Data collection proceeded iteratively using a thematic analysis approach with quality controls such as memoing and collaborative analysis. Results: Fourteen surgeons (8 male, 6 female) were interviewed. The majority (n = 11, 78.6%) were NCHDs. Significant themes determined included 'impacts' on a variety of constructs such as performance, self-reported fatigue and wellbeing. Training themes elucidated included the effects of the cancellation of elective admissions on reduced operative exposure for trainees. Senior surgical staff were particularly focused on increased complexity in patient management. New policy requirements such as personal protective equipment use and novel rotas have had implications for aspects of work engagement. The pandemic and subsequent national restrictions imposed has afforded opportunities for improved well-being but also resulted in greater solitude in surgeons. Conclusions: Rhetoric surrounding fatigue management and virus control dominates the conversation on the relationship between COVID-19 and surgery. Tipping the balance back to parity of fatigue management with service delivery in surgery will be key for sustainability of the surgical workforce."

Emergency Care

Environmental Factors and Hyperacute Stroke Care Activity During the COVID-19 Pandemic: An Interrupted Time-Series Analysis. Gittins M et al., Journal of Stroke & Cerebrovascular Diseases. "BACKGROUND AND AIMS: Concerns have arisen regarding patient access and delivery of acute stroke care during the COVID-19 pandemic. We investigated key

population level events on activity of the three hyperacute stroke units (HASUs) within Greater Manchester and East Cheshire (GM & EC), whilst adjusting for environmental factors. METHODS: Weekly stroke admission & discharge counts in the three HASUs were collected locally from Emergency Department (ED) data and Sentinel Stroke National Audit Programme core dataset prior to, and during the emergence of the COVID-19 pandemic (Jan 2020 to May 2020). Whilst adjusting for local traffic-related air pollution and ambient measurement, an interrupted time-series analysis using a segmented generalised linear model investigated key population level events on the rate of stroke team ED assessments, admissions for stroke, referrals for transient ischaemic attack (TIA), and stroke discharges. RESULTS: The median total number of ED stroke assessments, admissions, TIA referrals, and discharges across the three HASU sites prior to the first UK COVID-19 death were 150, 114, 69, and 76 per week. The stable weekly trend in ED assessments and stroke admissions decreased by approximately 16% (and 21% for TIAs) between first UK hospital COVID-19 death (5(th) March) and the implementation of the Act-FAST campaign (6(th) April) where a modest 4% and 5% increase per week was observed. TIA referrals increased post Government intervention (23(rd) March), without fully returning to the numbers observed in January and February. Trends in discharges from stroke units appeared unaffected within the study period reported here. CONCLUSION: Despite adjustment for environmental factors stroke activity was temporarily modified by the COVID-19 pandemic. Underlying motivations within the population are still not clear. This raises concerns that patients may have avoided urgent health care risking poorer short and long-term health outcomes."

Creating the Moorfields' virtual eye casualty: video consultations to provide emergency teleophthalmology care during and beyond the COVID-19 pandemic. Kilduff CL et al., BMJ Health & Care Informatics. "BACKGROUND: The COVID-19 crisis forced hospitals in the UK dramatically to reduce outpatient activity. To provide continuity of care and to assist patients reluctant or unable to leave their homes, video consultations were rapidly implemented across routine and emergency ophthalmology services. OBJECTIVE: To describe the deployment and scaling to a large volume of teleophthalmology using a video consultation platform 'Attend Anywhere' in Moorfields Eye Hospital's accident and emergency (A&E) department (London, UK). METHOD: Patient satisfaction, waiting time, consultation duration, outcome and management were audited following the launch of the new virtual A&E service. RESULTS: In the 12 days following the service launch, 331 patients were seen by video consultation. 78.6% of patients (n=260) were determined not to need hospital A&E review and were managed with advice (n=126), remote prescription (n=57), general practitioner referral (n=27), direct referral to hospital subspecialty services (n=26) or diversion to a local eye unit (n=24). Mean patient satisfaction was 4.9 of 5.0 (n=62). The mean consultation duration was 12 min (range 5-31 min) and the wait time was 6 min (range 0-37 min). CONCLUSION: Video consultations showed greater than expected usefulness in the remote management of eye disease and supported a substantial reduction in the number of people visiting the hospital."

Temporal trends in decompensated heart failure and outcomes during COVID-19: A multisite report from heart failure referral centres in London. Cannata A et al. European Journal of Heart Failure. "AIMS: Admission rates for acute decompensated heart failure declined during COVID-19. However, the impact of this reduction on hospital mortality is unknown. We describe temporal trends in the presentation of patients with acute heart failure (HF) and their in-hospital outcomes from two referral centres in London during the COVID-19 pandemic. METHODS

AND RESULTS: A total of 1372 patients hospitalized for HF in two referral centres in South London between 7(th) January and 14(th) June 2020, were included in the study and compared to the same time period in 2019. The primary outcome was all-cause in-hospital mortality. HF hospitalizations were significantly reduced during the COVID-19 pandemic, compared to 2019 (p<0.001). Specifically, we observed a temporary reduction in hospitalizations during the COVID-19 peak, followed by a return to 2019 levels. Patients admitted during the COVID-19 pandemic had similar demographic characteristics compared to the same period in 2019. However, in-hospital mortality was significantly higher in 2020 compared to 2019 (p=0.015). Hospitalization in 2020 was independently associated with worse in-hospital mortality (hazard ratio [HR] 2.23, 95% Confidence Interval [CI] 1.34 - 3.72; p=0.002). CONCLUSION: During the COVID-19 pandemic there was a reduction in HF hospitalizations and higher in-hospital mortality. Hospitalisation for HF in 2020 is independently associated with more adverse outcomes. Further studies are required to investigate the predictors of these adverse outcomes to help inform potential changes to the management of HF patients while some constraints to usual care remain."

Cancer care

Breast Cancer Surgery During the COVID-19 Pandemic Peak in the UK: Operative Outcomes. MacInnes EG et al., Cureus. "Introduction: The COVID-19 pandemic caused widespread changes in delivery of breast cancer care, aiming to protect vulnerable patients whilst minimising compromise to oncological outcomes. This multicentre observational study aimed to establish early surgical outcomes from breast cancer surgery performed during the peak of the COVID-19 pandemic. Materials and methods: Data were collected on consecutive patients that underwent breast surgery in four units between 16 March and 24 April 2020. Outcome data at 30 days post-operation were collected, including documented COVID-19 cases in patients and reported cases in healthcare workers directly involved in their care. Recommended modifications to practice to reduce COVID-19 transmission risk, both to patients and healthcare workers in each centre, are described. Results: A total of 202 patients underwent surgery in four hospitals delivering breast services in the West Yorkshire region over the six-week period at the peak of the pandemic. The age ranged from 28 to 91 years (median 57, interquartile range, 48-65) with 22% having co-morbidities linked to COVID-19, e.g. diabetes or respiratory disease. No patients presented post-operatively with COVID-19 symptoms and at 30 days there had not been any identified COVID-19 cases. There were no unexpected critical care admissions or deaths. One healthcare worker involved in the delivery of breast surgery was diagnosed with COVID-19 during this time and made an uneventful recovery. Conclusion: Breast cancer surgery, in selected groups and with meticulous adherence to measures designed to reduce COVID-19 transmission, does not appear to be associated with elevated risk to patients or healthcare workers."

Delivering esophago-gastric cancer care during the COVID-19 pandemic in the United Kingdom: a surgical perspective. Wahed S et al., Diseases of the Esophagus. "BACKGROUND: The COVID-19 pandemic continues to have a significant impact on the provision of medical care. Planning to ensure there is capability to treat those that become ill with the virus has led to an almost complete moratorium on elective work. This study evaluates the impact of COVID-19 on cancer, in particular surgical intervention, in patients with esophago-gastric cancer at a high-volume tertiary center. METHODS: All patients undergoing potential management for esophago-gastric cancer from 12 March to 22 May 2020 had their outcomes reviewed. Multi-disciplinary team (MDT) decisions, volume of cases, and outcomes following resection were evaluated. RESULTS: Overall 191

patients were discussed by the MDT, with a 12% fall from the same period in 2019, including a fall in new referrals from 120 to 83 (P = 0.0322). The majority of patients (80%) had no deviation from the pre-COVID-19 pathway. Sixteen patients had reduced staging investigations, 4 had potential changes to their treatment only, and 10 had a deviation from both investigation and potential treatment. Only one patient had palliation rather than potentially curative treatment. Overall 19 patients underwent surgical resection. Eight patients (41%) developed complications with two (11%) graded Clavien-Dindo 3 or greater. Two patients developed COVID-19 within a month of surgery, one spending 4 weeks in critical care due to respiratory complications; both recovered. Twelve patients underwent endoscopic resections with no complications. CONCLUSION: Care must be taken not to compromise cancer treatment and outcomes during the COVID-19 pandemic. Excellent results can be achieved through meticulous logistical planning, good communication, and maintaining high-level clinical care."

Impact of COVID-19 pandemic on surgical neuro-oncology multi-disciplinary team decision making: a national survey (COVID-CNSMDT Study). Price SJ et al., BMJ Open. "OBJECTIVES: Pressures on healthcare systems due to COVID-19 has impacted patients without COVID-19 with surgery disproportionally affected. This study aims to understand the impact on the initial management of patients with brain tumours by measuring changes to normal multidisciplinary team (MDT) decision making. DESIGN: A prospective survey performed in UK neurosurgical units performed from 23 March 2020 until 24 April 2020. SETTING: Regional neurosurgical units outside London (as the pandemic was more advanced at time of study). PARTICIPANTS: Representatives from all units were invited to collect data on new patients discussed at their MDT meetings during the study period. Each unit decided if management decision for each patient had changed due to COVID-19. PRIMARY AND SECONDARY OUTCOME MEASURES: Primary outcome measures included number of patients where the decision to undergo surgery changed compared with standard management usually offered by that MDT. Secondary outcome measures included changes in surgical extent, numbers referred to MDT, number of patients denied surgery not receiving any treatment and reasons for any variation across the UK. RESULTS: 18 units (75%) provided information from 80 MDT meetings that discussed 1221 patients. 10.7% of patients had their management changed-the majority (68%) did not undergo surgery and more than half of this group not undergoing surgery had no active treatment. There was marked variation across the UK (0%-28% change in management). Units that did not change management could maintain capacity with dedicated oncology lists. Low volume units were less affected. CONCLUSION: COVID-19 has had an impact on patients requiring surgery for malignant brain tumours, with patients receiving different treatments-most commonly not receiving surgery or any treatment at all. The variations show dedicated cancer operating lists may mitigate these pressures. STUDY REGISTRATION: This study was registered with the Royal College of Surgeons of England's COVID-19 Research Group (https://www.rcseng.ac.uk/coronavirus/rcs-covid-research-group/)."

Tertiary care

COVID-19 Pandemic Preparedness in a United Kingdom Tertiary and Quaternary Children`s Hospital: Tales of the Unexpected. Alders N et al., MedRxiv. (pre-print). "Background: The paucity of data describing SARS-CoV-2 in the paediatric population necessitated a broad-arching approach to pandemic planning, with preparations put in place to manage a heterogeneous cohort. We describe a diverse group of SARS-CoV-2 positive paediatric patients treated at a large tertiary/quaternary children's' hospital in the United Kingdom and the adaptive coping strategies

required. Methods: All paediatric patients with positive RT-PCR on a respiratory sample and/or serology for SARS-CoV-2 up to 19th May 2020 were included. Results: 57 children met the inclusion criteria. 70% were of non-Caucasian ethnicity with a median age of 9.3 years (IQR 5.16-13.48). Four distinct groups were identified: paediatric inflammatory multisystem syndrome temporally associated with SARS-CoV-2 (PIMS-TS) (54%), primary respiratory (18%), incidental (7%), and non-specific febrile illnesses with or without extra-pulmonary organ dysfunction (21%). These groups presented in distinct chronological blocks as the pandemic unfolded. Discussion: The diverse range of presentations of SARS-CoV-2 infection in this population exemplified the importance of preparedness for the unknown in the midst of a novel infectious pandemic. Descriptions of paediatric patients during the initial phase of the pandemic from other parts of the globe and extrapolation from adult data did not serve as an accurate representation of paediatric COVID-19 in our centre. An adaptive, multidisciplinary approach was paramount. Expanded laboratory testing and incorporation of technology platforms to facilitate remote collaboration in response to strict infection control precautions were both indispensable. Lessons learned during the preparation process will be essential in planning for a potential second wave of SARS-CoV-2."

Trinational Study Exploring the Early Impact of the COVID-19 Pandemic on Organ Donation and Liver Transplantation at National and Unit Levels. Reddy MS et al., Transplantation. "BACKGROUND: The COVID-19 pandemic is stressing healthcare services to an unprecedented extent. There is anecdotal evidence of reduction in organ donation and transplantation (ODT) activity across the world. METHODS: The weekly organ donation and liver transplant numbers over a 3-month period (17th Feb 2020 till 17th May 2020) for the USA, UK and India were compared to their previous year's activity. Liver transplant activity in 6 centers from these countries with varying local COVID-19 caseload was also compared. RESULTS: The COVID-19 pandemic has led to a significant contraction in organ donation and liver transplantation in all 3 countries. Peak reduction ranged from 25% in the USA to over 80% in the UK and India. The reduction was different for deceased donor and living donor liver transplantation and varied between centers within a country. There was early evidence of recovery of deceased donation in the USA and UK and resumption of living donor liver transplantation activity in India towards the end of the study period. A number of policy changes were undertaken at national and transplant center levels to ensure safe transplantation despite significant redirection of resources to combat the pandemic. CONCLUSIONS: There was a substantial reduction in organ donation and liver transplantation activity across the 3 countries with signs of recovery towards the end of the study period. Multiple factors including COVID-19 severity, stress on resources and influence of regulatory agencies and local factors are responsible for the reduction and recovery."

Commentaries

Primary care

After the first wave: What effects did the COVID-19 measures have on regular care and how can general practitioners respond to this? van Weert H., Eur J Gen Pract.

General practice post-COVID-19: time to put equity at the heart of health systems? Ashwell G et al., British Journal of General Practice

Outpatient Care

Telehealth for Noncritical Patients With Chronic Diseases During the COVID-19 Pandemic. Liu N et al. J Med Internet Res.

Elective Care

Surgery during COVID-19 crisis conditions: can we protect our ethical integrity against the odds? Macleod J et al. Journal of Medical Ethics.

Emergency Care

Impact of COVID-19 on cardiology services in a district hospital and adapting to the new normal. Hasan S et al., Postgrad Med J.

Maternity Services

Maternal postnatal health during the COVID-19 pandemic: Vigilance is needed. Bick D et al., Midwifery.

Tertiary care

Donation and transplantation activity in the UK during the COVID-19 lockdown. Manara AR et al., The Lancet.