The Strategy Unit
At NHS Midlands and Lancashire Commissioning Support Unit

COVID-19 Evidence Alert - 4 June 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 update is intended to provide a brief update on the evidence base since the scan e.g. new areas of focus; changes in recommendations; consistency with earlier evidence.

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').

Here you will also find details of the evidence that has been used to inform this weekly update.

Following the publication of this weekly alert the evidence trackers are updated with the new evidence meaning the evidence trackers provide an up-to-date resource on these key topics. We are also working on other key areas of interest such as impacts on inequalities and marginalised groups, which will be added to the alert once completed.

Residential settings

Since our initial rapid scan on 7 May, there has been increased scrutiny regarding the impact of Covid-19 in care homes and what lessons may be learned and applied to minimise further spread and harm, as indicated by additional guidance and several commentaries. Analysis from the Health Foundation explores the uneven spread of infection in care homes across the country. There is also evidence emerging on the impact in other residential facilities, including prisons. Strategies to limit spread include: use of standard PPE, disinfection, physical distancing and universal testing, including asymptomatic individuals. There are also concerns for the protection and wellbeing of staff and carers in residential facilities.

Commentary from the collaborative

- **Care homes in London and the North worse hit by COVID-19 than other areas of England** Health Foundation (26/5/20)
- **Do all care home residents face an equal risk of dying from COVID-19?** Health Foundation (updated 22/5/20)

- **What has been the impact of COVID-19 on care homes and the social care workforce?** (15/5/20) Health Foundation
- **Care homes have seen the biggest increase in deaths since the start of the outbreak** Health Foundation (updated 13/5/20)

Guidance

- **Strengthening the Health Systems Response to COVID-19 - Technical guidance #6. Preventing and managing the COVID-19 pandemic across long-term care services in the WHO European Region** WHO (21/5/20)
- **Coronavirus (COVID-19): guidance on isolation for residential educational settings** Department for Education and Public Health England (updated 27/5/20)
- **COVID-19: prisons and other prescribed places of detention guidance** Public Health England and Ministry of Justice (updated 20/5/20)
- **Coronavirus (COVID-19): support for care homes** Department of Health and Social Care (updated 22/5/20)
- **COVID-19: Managing the COVID-19 pandemic in care homes for older people** (updated 2/6/20) British Geriatrics Society

Rapid Reviews

- **Rapid Review: What are the optimal strategies for controlling outbreaks of COVID-19?** **Alberta Health Services, COVID-19 Scientific Advisory Group (8/5/20).** This rapid review explores evidence on disinfection, symptom screening, PPE, social distancing and testing of asymptomatic individuals.

Emerging evidence

- **England: Estimates of mortality of care home residents linked to the COVID-19 pandemic**. **Comas -Herrera and Fernandez (17/5/20) LTCCovid**. Data on deaths in care homes directly attributed to COVID-19 underestimate the impact of the pandemic on care home residents, as they do not take account of indirect mortality effects of the pandemic and/or because of problems with the identification of the disease as the cause of death. This short report has been updated since the first version of the 12th of May, as the ONS published more detailed data on care home residents on the 15th May.
- **Scottish Care Homes and COVID-19.** **Bell et al, Universities of Stirling, Edinburgh Napier and Edinburgh (May 2020)**. This report details the impact of the COVID pandemic on care homes in Scotland, including deaths from COVID and excess deaths. Undecided whether to include
- **SARS-CoV-2 infection, clinical features and outcome of COVID-19 in United Kingdom nursing homes**. **Graham et al (26/5/20). MedRxiv preprint.** An outbreak investigation in 4 nursing homes affected by COVID-19 outbreaks in central London, including 394 residents and 70 staff.
- **Mortality associated with COVID-19 outbreaks in care homes: early international evidence**. **Comas-Herrera et al (21/5/20) LTCCovid**. For a few countries the authors were able to estimate the share of all care home residents whose deaths can be linked to COVID-19. These range from 0 in Hong Kong, 0.3% in Austria, 0.4% in Germany and 0.9% in Canada, to 2% in

Sweden, 2.4% in France and 3.7% in Belgium. In the UK, if only deaths in care homes registered as linked to COVID-19, the figure would be 2.8, whereas if excess deaths of care home residents is used, it would be 6.7%.

- **International examples of measures to prevent and manage COVID-19 outbreaks in residential care and nursing home settings. Comas-Herrera et al (11/5/20) LTCCovid**. Countries with low-levels of infection in the population typically also have low shares of infections in care homes. The response to COVID-19 in care homes needs to be coordinated across all relevant government departments and levels, and with the acute health sector response.
- **Rapid increase of Care Homes reporting outbreaks a sign of eventual substantial disease burden. Hall et al, medRxiv preprint (11/5/20)** Recent data on the number of new outbreak reports in care homes to Public Health England shows an initial increase then plateau perhaps associated with an SIS model dynamic. Without change in policy moving forward a high prevalence in such setting is predicted of around 75%.
- **CQC Insight Report Care Quality Commission (19/5/20)** This first insight document focuses on adult social care: reviewing data on outbreaks, deaths and availability of PPE, and in particular highlighting the impact of COVID-19 on staff wellbeing and the financial viability of adult social care services.

Commentaries

- **COVID-19 and prisons: Providing mental health care for people in prison, minimising moral injury and psychological distress in mental health staff.** Kothari et al (28/5/20) Medicine, Science and the Law, https://doi.org/10.1177/0025802420929799
- **What went wrong (and right) in hospital discharge for older adults during the pandemic** Oliver, D, HSJ (26/5/20)
- **Spotlight on... Recent discharges into care homes** NHS Providers (19/5/20)
- **Covid-19: The support UK care homes need to survive**. Carter, R. BMJ (14/5/20) 369 doi: https://doi.org/10.1136/bmj.m1858
- **Care home deaths: the untold and largely unrecorded tragedy of COVID-19.** Gordon et al, Age and Ageing (13/5/20)
- **Prisons are "in no way equipped" to deal with COVID-19** Tahla Burka, The Lancet (2/5/20)

Useful resources

- **Care Home Resource Hub.** Specialist Pharmacy Service.

Impacts of lifting restrictions

Since our initial rapid scan on 14th May, there has been more emerging evidence around medical/surgical facemasks and other coverings (e.g. cloth /homemade masks) and whether these are an effective means of reducing viral transmission. Most recently, a Lancet article supports the use of face-coverings in public. Further studies on lockdown restrictions have emerged with consideration for mitigating adverse economic impacts of lockdown in the long-term. Modelling studies and commentary on the impact of lifting restrictions are largely consistent with earlier evidence, indicating that a second epidemic wave is likely if restrictions are lifted prematurely or

without adequate mitigation- the risk of long-term economic and public health repercussions of additional lockdowns are also highlighted. Further studies have been identified comparing the response of different countries and healthcare systems to the COVID-19 outbreak.

Rapid reviews

- **Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis Chu et al, The Lancet (1/6/20)**. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) causes COVID-19 and is spread person-to-person through close contact. This review aimed to investigate the effects of physical distance, face masks, and eye protection on virus transmission in health-care and non-health-care (eg, community) settings.
- **Face masks and coverings for the public**. There has been some debate on the interpretation of evidence for face coverings to reduce transmission. Earlier work highlighted the challenges in interpreting the evidence: for example, a rapid review from Alberta Health Services and a rapid review using Bayesian analysis found mixed evidence. Analysis advocating the use of face coverings was published in the BMJ in April. A critique was subsequently shared online and later a response to the critique was published. Most recently, the Lancet article (above bullet point) supports the use of face coverings in public.
- **Summary: How have population-level non-pharmaceutical interventions [NPIs] to reduce SARS CoV-2 transmission been related in time to the reproduction number (R) and have countries used measures of R in making decisions about the application of these interventions?. Li Y et al (1/5/20) University of Edinburgh.** Including a link to the full review, this summary explores evidence on criteria which informed the lifting of restrictions.
- **Indoor and outdoor transmission**. The UNCOVER team at the University of Edinburgh have conducted rapid reviews on outdoor and indoor transmission of COVID-19. Summaries and links to full reviews available.
- **Using social and behavioural science to support COVID-19 pandemic response. Van Bavel et al (30/4/20). Nature Human Behaviour, vol 4,460–471**. A brief review of evidence from a selection of research topics relevant to pandemics, including work on navigating threats, social and cultural influences on behaviour, science communication, moral decision-making, leadership, and stress and coping.

Emerging evidence

- **Dynamic interventions to control COVID-19 pandemic: a multivariate prediction modelling study comparing 16 worldwide countries. Chowdhury et al, European Journal of Epidemiology (2020) 35:389–399**. This study employed a multivariate prediction model to simulate outbreak trajectories in 16 countries, modelling the impacts on intensive care unit (ICU) admissions and deaths over an 18-month period for three scenarios: (1) no intervention, (2) consecutive cycles of mitigation measures followed by a relaxation period, and (3) consecutive cycles of suppression measures followed by a relaxation period.
- **Modelling SARS-COV2 Spread in London: Approaches to Lift the Lockdown. Goscé et al, Journal of Infection (preprint), https://doi.org/10.1016/j.jinf.2020.05.037**. In order to achieve elimination and lift lockdown within 5 months, the best strategy seems to be a combination of

weekly universal testing, contact tracing and use of facemasks, with concurrent lockdown. This approach could potentially reduce deaths by 48% compared with continued lockdown alone.

- **Report 25 - Response to COVID-19 in South Korea and implications for lifting stringent interventions**. **Dighe et al., (29/5/20).** A quantitative review of South Korea's response to the COVID-19 epidemic to draw insights into the different components of the response and possible implications for other countries' strategies for lifting stringent social distancing interventions.
- **Containment Strategies for COVID-19 Pandemic**. **Travica. SSRN eLibrary (preprint) (22/5/20)**. An exploratory study reporting on how different countries have responded to the COVID-19 pandemic, including a model of pandemic containment strategies (Restrictive, Permissive, and Hybrid).
- **COVID-19 and the Social Distancing Paradox: dangers and solutions**. **Marchiori, M (26/5/20) ArXiv preprint**. This study from Italy found that without masks, people adopt a counter-intuitively dangerous strategy, a paradox that could explain the relative lack of effectiveness of social distancing. Using masks radically changes the situation, breaking the paradoxical behaviour and leading to a safe social distance behaviour.
- **Lockdown Strategies, Mobility Patterns and COVID-19. Askitas et al (May 2020), Bonn: Institute of Labor Economics**. A multiple-events model to explore variation in the timing, type and level of intensity of various non-pharmaceutical interventions and impacts on incidence and on population mobility patterns across 135 countries. Findings establish that cancelling public events and enforcing restrictions on gatherings have the largest effect on curbing the pandemic in terms of statistical significance and levels of effect, followed by workplace and school closures as well as stay-at-home requirements.
- **Applying principles of behaviour change to reduce SARS-CoV-2 transmission**. **West et al (6/5/20) Nature Human Behaviour, vol 4, 451–459**. In addition to isolation and social distancing measures, enactment of key personal protective behaviours is vital in order to reduce the transmission of SARS-CoV-2 and other respiratory viruses. Interventions to target individual behaviours such as these could potentially lead to substantial population-level effects, and behavioural science models and methods can be used to develop and evaluate such interventions.
- **Identifying and Interrupting Superspreading Events-Implications for Control of Severe Acute Respiratory Syndrome Coronavirus 2. Frieden and Lee, Emerging Infectious Diseases, 26 (6), 1059-1066**. Targeted and rapidly implemented public health interventions to prevent and mitigate superspreading events are critical for early interruption of transmission during the containment phase and to reduce the effect on the disruption of healthcare services and society during the mitigation phase.
- **Inferring change points in the spread of COVID-19 reveals the effectiveness of interventions. Dehning et al, Science, (15/2/20) doi: 10.1126/science.abb9789.** Focusing on COVID-19 spread in Germany, this study explores change points in the effective growth rate that correlate with publicly announced interventions, thus quantifying the effect of interventions, and enabling forecasts of future scenarios and case numbers.
- **Predicted Effects of Stopping COVID-19 Lockdown on Italian Hospital Demand Bollon et al (18/5/20) Disaster Medicine and Public Health Preparedness, May 2020, 1-15**. To forecast the demand for hospital ICU and non-ICU beds for COVID-19 patients from May-September, a

model was developed to evaluate two scenarios: A) an intermittent lockdown; B) a gradual relaxation of the lockdown.

- **Hasty Reduction of COVID-19 Lockdown Measures Leads to the Second Wave of Infection. Hazem et al. MedRXiv preprint (26/5/20)**. This study, quantitatively, investigated the impact of lockdown relaxations in the United States, Germany, the United Kingdom, Italy, Spain, and Canada.
- **The impact of lockdown measures on COVID-19: a worldwide comparison. Papadopoulos et al. MedRXiv preprint (26/5/20)**. At this stage in the pandemic, early institution of public information, international travel restrictions, and workplace closure are associated with reduced COVID-19 mortality and maintaining these policies may help control the pandemic.
- **Emerging from the other end: Key measures for a successful COVID-19 lockdown exit strategy and the potential contribution of pharmacists. Dawoud, D. Research in Social and Administrative Pharmacy, (13/5/20) https://doi.org/10.1016/j.sapharm.2020.05.011**. Ranging from expanded testing and widespread use of technology to building the public's trust in the post COVID-19 world, there is a role for pharmacists to play. In this commentary, these measures and the potential contribution of pharmacists to their successful implementation are outlined and discussed.
- **Estimating the impact of COVID-19 control measures using a Bayesian model of physical distancing. Anderson SC et al., MedRXiv preprint (22/04/20).** This non-peer reviewed study used Bayesian modelling to estimate the impact of social distancing measures on reported cases of COVID-19, hospitalisation and intensive care unit numbers. Model projections indicated intermittent social distancing measures could control COVID-19 transmission, if followed strongly and robustly enough; however, if relaxed too early the model indicates a resurgence in transmission rates is likely.

Commentaries

- **Balancing lives and livelihoods: relaxation of lockdown needs to be finely balanced**. Panovska-Griffiths et al (1/6/20) BMJ
- **Face coverings for the lay public: an alternative view.** Greenhalgh T. (27/05/20). Centre for Evidence Based Medicine. This commentary by T. Greenhalgh outlines ongoing debate and contention on the use of face-coverings as a public health measure to reduce viral transmission. This outlines the author's interpretation of available evidence, also linking to a peer-reviewed article which explains the basis for the author's interpretation in more detail: Face coverings for the public: Laying straw men to rest (26/05/20)
- **Shielding from covid-19 should be stratified by risk**. Davey Smith and Spiegelhalter (28/5/20), BMJ, 369, m2063.
- **Can the UK emulate the South Korean approach to covid-19?** Majeed et al (28/5/20) BMJ, 369, m2084.
- **The lockdowns worked—but what comes next?** Kupferschmidt K (17/4/20) Science Vol. 368, Issue 6488, pp. 218-219.

Long term rehabilitation needs

Since our initial rapid scan on 13 May, there has been an increase in published evidence regarding the rehabilitation needs of COVID 19 patients (see resource section for more research papers). There has been increased scrutiny regarding Kawasaki-like multisystem inflammatory syndrome in children, the symptoms and complications of COVID-19 in the nervous system and the musculoskeletal consequences of COVID-19. One rapid review analysed the functional impacts of COVID-19 that went beyond infected patients, to influence the wellbeing of healthcare workers and the entire community. There have also been additional studies that reviewed the Rehabilitation needs of older people specifically.

Guidance

- **Guidance: Paediatric multisystem inflammatory syndrome temporally associated with COVID-19** Royal college of Paediatrics and Child Health
- **Rehabilitation needs of COVID-19 patients** Alberta Health Services.

Rapid Reviews

- **Long-term clinical outcomes in survivors of severe acute respiratory syndrome and Middle East respiratory syndrome coronavirus outbreaks after hospitalisation or ICU admission: A systematic review and meta-analysis. Ahmed, H et al. Journal of Rehabilitation Medicine,** The objective of this review is determine long-term clinical outcomes in survivors of severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) coronavirus infections after hospitalization or intensive care unit admission. Pooled analysis revealed that common complications up to 6 months after discharge were: impaired diffusing capacity for carbon monoxide and reduced exercise capacity. The prevalence of post-traumatic stress disorder, depression and anxiety beyond 6 months after discharge were considerable.
- **The Functional Impacts of the Covid-19 Pandemic: A Rapid Review Hitch, D et al. Research Square**. The review focuses on primary sources describing and evaluating the functional impact of SARS, MERS and Covid-19 coronavirus pandemics. It states the functional impact of the Covid-19 pandemic is likely to spread far beyond infected patients, to influence the wellbeing of healthcare workers and the entire community. The findings of this review indicate that health services must engage with the inter-sectionality of pandemic experiences, collaborate with other sectors as part of society-wide responses and prioritize function as a key outcome.
- **Neurological manifestations of COVID-19 and other coronavirus infections: A systematic review Montalvan, V et al. Clinical Neurology and Neurosurgery.** This paper reviews the neurological aspects of SARS-cov2 and other coronavirus, including transmission pathways, mechanisms of invasion into the nervous system, and mechanisms of neurological disease. The SARS-CoV-2 receptor is expressed in the nervous system. Common reported symptoms included hyposmia, headaches, weakness, altered consciousness. Encephalitis, demyelination, neuropathy, and stroke have been associated with COVID-19. Infection through the cribriform plate and olfactory bulb and dissemination through trans-synaptic transfer are some of the mechanisms proposed.

- **Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Infection in Children and Adolescents: A Systematic Review** **Castagnoli R et al, JAMA Pediatrics.** The review looked ta the clinical features of paediatric patients with coronavirus. In this systematic review of 18 studies with 1065 participants, most paediatric patients with SARS-CoV-2 infection presented with fever, dry cough, and fatigue or were asymptomatic. Infant presented with pneumonia, complicated by shock and kidney failure, and was successfully treated with intensive care. Most paediatric patients were hospitalized, and symptomatic children received mainly supportive care; no deaths were reported in the age range of 0 to 9 years.

Emerging Evidence

- **Neurological complications of covid-19** **Bridwell,R; Long, Brit; Gottlieb,M. American Journal of Emergency Medicine**. This brief report summarizes the neurologic complications associated with COVID-19 with an emphasis on the emergency medicine clinician. It states while pulmonary complications are profound with COVID-19 patients, the neurologic system is also significantly impacted. When caring and providing Rehab for COVID-19 patients, emergency medicine clinicians should be aware of the neurologic complications from COVID-19.
- **The British Thoracic Society survey of rehabilitation to support recovery of the Post Covid -19 population.** **Singh et al, medRxiv**. The purpose of this survey was to rapidly identify the components of a post-Covid-19 rehabilitation assessment and elements of a successful rehabilitation programme that would be required to deliver a comprehensive service for those post Covid-19 to inform service delivery. There was overwhelming support for early post discharge from hospital phase of the recovery programme to advise patients about the management of fatigue (95% agreed/ strongly agreed), breathlessness (94%), and mood disturbances (including symptoms of anxiety and depression) 92%.
- **Considerations for Postacute Rehabilitation for Survivors of COVID-19** **Sheehy, L JMIR Public Health Surveill. doi: 10.2196/19462.** This report explores the rehabilitation services that COVID 19 patients require within the context of sub-acute hospital delivering geriatric inpatient and outpatient rehabilitation services. The study proposes a thorough assessment and an individualized, progressive treatment plan which focuses on function, disability, and return to participation in society will help each patient to maximize their function and quality of life.
- **The COVID-19 Rehabilitation Pandemic** **Biase et al, Oxford Academic.** This commentary reviews the likely rehabilitation needs of older people both with and without COVID-19 and discusses how strategies to deliver effective rehabilitation at scale can be designed and implemented in a world living with COVID-19. Key messages include 1) Post COVID-19 rehabilitation will be complex and requires specialist multidisciplinary multi-agency services 2)Deconditioning and frailty as a result of self-isolation, shielding and social distancing will also require therapy services 3) Older people need access to rehabilitation services in a timely fashion that meets their personal needs and goals 4) Rehabilitation services need to prepare for a post-pandemic wave of older people in need.
- **Flattening the disability curve: Rehabilitation and recovery after COVID-19 infection** **Falvey, J. R., & Ferrante, L. E. (2020). Heart & lung: the journal of critical care**. This paper proposes two additional strategies which could help improve disability outcomes for COVID-19 survivor 1) Increase use of tele-rehabilitation during the hospital stay 2) Consider developing rehabilitation at home models for COVID-19 survivors after discharge.

- **Rehabilitation Response in Pandemics. Amataya, B; Khan F. American Journal of Physical Medicine and Rehabilitation**. This report proposes development of a 'Rehabilitation Response Plan'. The key considerations include following categories: Governance, Coordination, Communication, Evaluation, and Care-continuum. The study states this will strengthen rehabilitation, assist in the effective delivery of services, provide advocacy, and an international coordinated perspective.
- **Musculoskeletal Consequences of COVID-19 Nathaniel, D et al The Journal of Bone and Joint Surgery doi: 10.2106/JBJS.20.00847.** The purpose of this article was to summarise the known musculoskeletal pathologies in patients with SARS or COVID-19 and to combine this with computational modelling and biochemical signalling studies to predict musculoskeletal cellular targets and long-term consequences of the SARS-CoV-2 infection .It states it is appropriate to anticipate short-term and long-term musculoskeletal complications in patients with moderate and severe COVID-19 .Conservative rehabilitation programs have been shown to improve functional recovery in patients with SARS and are effective in other critical illnesses as well.
- **Kawasaki-like disease: emerging complication during the COVID-19 pandemic Viner, R M, The Lancet.** This paper reviews the emerging evidence and cases of Kawasaki-like disease across Europe. The article suggests a possible emerging inflammatory syndrome associated with COVID-19. It states it is crucial to reiterate—for parents and health-care workers alike—that children remain minimally affected by SARS-CoV-2 infection overall. It proposes that understanding this inflammatory phenomenon in children might provide vital information about immune responses to SARS-CoV-2 and possible correlates of immune protection that might have relevance both for adults and children.
- **Kawasaki-like multisystem inflammatory syndrome in children during the covid-19 pandemic in Paris, France: prospective observational study Toubiana, J et al. BMJ 2020; 369.** The objective of the prospective observational study was to describe the characteristics of children and adolescents affected by an outbreak of outbreak of Kawasaki-like multisystem inflammatory syndrome and to evaluate a potential temporal association with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection. Results showed the ongoing outbreak of Kawasaki-like multisystem inflammatory syndrome among children and adolescents in the Paris area might be related to SARS-CoV-2. In this study an unusually high proportion of the affected children and adolescents had gastrointestinal symptoms, Kawasaki disease shock syndrome, and were of African ancestry.
- **Hyperinflammatory shock in children during COVID-19 pandemic Riphagen S et al, Lancet**. This paper provides description of the children who have presented at South Thames Retrieval Service in London, UK with hyperinflammatory shock, showing features similar to atypical Kawasaki disease. Clinical presentations were similar, with unrelenting fever (38–40°C), variable rash, conjunctivitis, peripheral oedema, and generalised extremity pain with significant gastrointestinal symptoms.

Useful resources

- **Building a model of support for reducing trauma after COVID-19.** Marcelline F. (02/06/20)
- **Effect of Physio and other treatments on COVID-19 patients.** Collins P (28/05/20)
- **Long term effects of COVID-19 (27/5/2020)**. NHS Borders Library Service. (28/05/20)

Screening and testing

Since our initial rapid scan on 20 May, there has been more evidence emerging on contact tracing including ethical implications and the use of technology. There is also evidence emerging on testing asymptomatic patients and population groups to limit spread, including implications for continuity of care (e.g. testing prior to procedures) and the potential impact on health inequalities. There are some studies emerging on seroprevalence but the implications are still unclear.

Commentary from the collaborative

- **Contact tracing app threatens to exacerbate unequal risk of COVID-19**. Health Foundation (3/6/20)
- **Three tests for the COVID-19 contact tracing app**. Steventon, A Health Foundation. (29/5/20).

Guidance

- **Ethical considerations to guide the use of digital proximity tracking technologies for COVID-19 contact tracing** – WHO guidance (28 May 2020)
- **Contact tracing for COVID-19: current evidence, options for scale-up and an assessment of resources needed** European Centre for Disease Prevention and Control (5 May 2020)
- **NHS test and trace: how it works** Department of Health and Social Care (27 May 2020)
- **NHS test and trace: workplace guidance** Department of Health and Social Care (27 May 2020)

Rapid Reviews

- **Are there populations of asymptomatic individuals (e.g., population sampling; congregate living including LTC, vulnerable populations; patients being hospitalized, those associated with outbreaks, HCWs) that should be considered priority for screening for COVID 19 infection (with RTPCR), with the goal of surveillance and preventing spread within these populations? Alberta Health Services, COVID-19 Scientific Advisory Group (1/5/20)** There is limited evidence on best practice, however there is evidence to suggest testing asymptomatic people can be critical to outbreak control. Early evidence suggests focusing on higher risk populations.

Emerging evidence

- **Lessons from a rapid systematic review of early SARS-CoV-2 serosurveys Bobrovitz N et al. MedRXiv preprint.** A rapid systematic review of cross-sectional and cohort studies reporting seroprevalence outcomes for SARS-CoV 2. We included completed, ongoing, and proposed serosurveys.
- **Drive-through testing in COVID-19: experience from NHS Lothian**. **Hill et al, Clinical Medicine, May 2020, DOI: https://doi.org/10.7861/clinmed.2020-0160**. A description of coronavirus testing used for testing of possible cases in the contain phase of UK response and now being used for healthcare worker testing.

- **Interrupting transmission of COVID-19: lessons from containment efforts in Singapore. Lee et al. J Travel Med (18/5/20), 27(3), doi: 10.1093/jtm/taaa039**. A brief report describing the combination of measures taken by Singapore to contain COVID-19 and share some early lessons learnt from the experience.
- **Testing of Patients and Support Persons for Coronavirus Disease 2019 (COVID-19) Infection Before Scheduled Deliveries. Bianco et al (19/5/20). Obstetrics and Gynecology, doi: 10.1097/AOG.0000000000003985**. An evaluation of universal testing in an obstetric population presenting for scheduled deliveries and assessment of the utility of a screening tool in predicting testing results.
- **Determining the optimal strategy for reopening schools, work and society in the UK: balancing earlier opening and the impact of test and trace strategies with the risk of occurrence of a secondary COVID-19 pandemic wave. Panovska-Griffiths et al (1/6/20). MedRxiv preprint**. The analysis found that with increased levels of testing of people (between 25% and 72% of symptomatic people tested at some point during an active COVID-19 infection depending on scenarios) and effective contact-tracing and isolation for infected individuals, an epidemic rebound may be prevented across all reopening scenarios, with the effective reproduction number (R) remaining below one and the cumulative number of new infections and deaths significantly lower than they would be if testing did not increase.
- **Screening of healthcare workers for SARS-CoV-2 highlights the role of asymptomatic carriage in COVID-19 transmission (preprint 15/5/20) Rivett et al, MedRXiv**. Over a 3-week period (April 2020), 1,032 asymptomatic HCWs were screened for SARS-CoV-2 in a large UK teaching hospital. Symptomatic staff and symptomatic household contacts were additionally tested. The data demonstrates the utility of comprehensive screening of HCWs with minimal or no symptoms.
- **Impact of virus testing on COVID-19 case fatality rate: estimate using a fixed-effects model Terriau et al (preprint 1/5/20) MedRXiv.** The increase of one percentage point in the test rate is associated with a decrease of 0.001 percentage point in the death rate. In other words, for each additional 1000 tests, one person would have remained alive.
- **Intensive COVID-19 testing associated with reduced mortality - an ecological analysis of 108 countries, Kenyon, C (preprint 30/5/20), MedRXiv.** Linear regression was used to assess the country-level association between COVID 19 attributable mortality per 100 000 inhabitants (mortality/capita) and COVID-19 tests/capita (number of tests/100 000 inhabitants) controlling for the cumulative number of COVID-19 infections/100 000 inhabitants (cases/capita), the age of the epidemic (number of days between first case reported and 8 April), national health expenditure per capita and WHO world region.
- (Literature search results) **What are best practices for contact tracing for COVID-19, SARS, MERS, and influenza? World Health Organisation- Medical Library Association.**

Commentaries

- **What policy makers need to know about COVID-19 protective immunity.** Altmann et al, The Lancet, 395, 1527-9.
- **COVID-19 immunity passports and vaccination certificates: scientific, equitable, and legal challenges.** Phelan, A, The Lancet, 395, 1595-7.

- **Clinical Implications of Universal Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Testing in Pregnancy**. Miller et al (19/5/20), Obstetrics & Gynecology, doi: 10.1097/AOG.0000000000003983
- **Covid-19: ensuring equality of access to testing for ethnic minorities.** Dodds and Fakoya, BMJ, 369:m2122
- **Ethical guidelines for COVID-19 tracing apps**. Morley et al (28/5/20), Nature, 582, 29-31

Broader impacts on health outcomes

Rapid scan now completed, tracker in progress. Update to be provided in the next edition.

Impact on non-Covid care

Rapid scan now completed, tracker in progress. Update to be provided in the next edition.