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<th>Key Terms</th>
<th>Date Published</th>
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<th>Summary &amp; Key Points</th>
<th>Specific Observations</th>
<th>Full Citation</th>
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<tr>
<td>Pregnancy, drug development, interventional clinical trials, inclusion criteria</td>
<td>31-May-20</td>
<td>Inclusion of pregnant women in clinical trials of COVID-19: therapies: what have we learned?</td>
<td>British Journal of Anaesthesia</td>
<td>Correspondence</td>
<td>The authors studied the approach towards recruitment of pregnant women to interventional clinical trials for COVID-19. Among 371 interventional trials registered, most declare pregnancy an exclusion criterion (251/371, 68%). This is most striking in trials investigating the use of drugs (235/310, 75.8%). Many trials altogether avoid mention of pregnant women in their inclusion/exclusion criteria (117/371, 31%). Even trials investigating drugs with a relatively favorable safety profile (e.g. ascorbic acid), interventions or drugs already being used in pregnant women (e.g. extra-corpooreal membrane oxygenation [ECMO], steroids) or those investigating low-risk non-pharmacological interventions (e.g. biological sampling for diagnostic/basic science purposes) exclude pregnant women. Most importantly, there is a global lack of differentiation between the risks at various developmental stages of pregnancy.</td>
<td>This report argues in favor of inclusion of pregnant women in interventional clinical trials for COVID-19.</td>
<td>Ei.nav S, Ippolito M, Cortegiani A. Inclusion of pregnant women in clinical trials of COVID-19 therapies: what have we learned? [published online 2020 May 31]. Br J Anaesth. doi:10.1016/j.bja.2020.05.020</td>
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<td>Children, clinical presentation, symptoms, asymptomatic, meta-analysis</td>
<td>31-May-20</td>
<td>Presenting symptoms of COVID-19 in children: a meta-analysis of published studies</td>
<td>British Journal of Anaesthesia</td>
<td>Correspondence</td>
<td>In this meta-analysis of symptoms in children with positive SARS-CoV-2 RT-qPCR tests, of 737 articles identified, 28 (n=1614 patients) articles were relevant for analyses. All studies, but one, were retrospective and included patients from China with the exception of four studies (from Malaysia, Spain, Italy, and the USA). Fever and cough were the most common signs of COVID-19 in children. This study conclusively confirmed the clinical impression that COVID-19 in children typically presents as a mild (37%) or moderate (45%) upper respiratory tract infection and is rarely severe or critical. In addition, 16% of SARS-CoV-2-infected pediatric patients were asymptomatic in this analysis. Typical CT changes were present in just 55% of patients, indicating that CT scanning is of lesser value in children compared with adults.</td>
<td>Results of this meta-analysis provide conclusive evidence on the absence of specificity regarding COVID-19 symptoms in children and the relatively high proportion of asymptomatic patients among children.</td>
<td>Assaker R, Colas AE, Julien-Marsollier F, et al. Presenting symptoms of COVID-19 in children: a meta-analysis of published studies [published online 2020 May 31]. Br J Anaesth. doi:10.1016/j.bja.2020.05.026</td>
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<td>Pregnancy, maternal anxiety, maternal depression, GAD-7, PHQ-9, lockdown period, UK</td>
<td>31-May-20</td>
<td>Anxiety and Depression Levels Among Pregnant Women With COVID-19</td>
<td>Acta Obstetrica et Gynecologica Scandinavica</td>
<td>Letter to Editor</td>
<td>Most studies on COVID-19 in pregnancy have focused on physical effects of the pandemic on infected mothers as well as the possibility of vertical transmission; these tend to eclipse maternal mental health needs during these unprecedented times. The authors present pilot data on anxiety and depression levels in pregnant women at an inner-city London hospital, over the past 11 weeks of the pandemic. Eleven COVID-19 positive mothers completed the cross-sectional survey, within one week of diagnosis, and the median Generalised Anxiety Score 7 (GAD-7) throughout the 11-week period was 3 (scores of 5, 10, and 15 are cut-off points for mild, moderate and severe anxiety. The median Patient Health Questionnaire-9 (PHQ-9) score throughout the 11-week period was 2 (scores of 5, 10, 15, and 20 represent boundaries for mild, moderate, moderately severe and severe depression). Both sets of scores declined in the last few weeks of the lockdown period, likely as more information on maternal COVID-19 became available.</td>
<td>Although pilot data suggest that maternal levels of anxiety and depression at the tail-end of the COVID-19 pandemic in the UK appear low, the authors conclude that maternal mental health should not be overlooked.</td>
<td>Kotabagi P, Fortune L, Essien S, Nauta M, Yoong W. Anxiety and depression levels among pregnant women with COVID-19 [published online 2020 May 31]. Acta Obstet Gynecol Scand. doi:10.1111/aogs.13928</td>
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<td>Adolescent, chilblain-like lesions, pemiosis, serology, IgA, Italy</td>
<td>31-May-20</td>
<td>A Clinical, Histopathological and Laboratory Study of 19 Consecutive Italian Paediatric Patients With Chilblain-like Lesions</td>
<td>Journal of the European Academy of Dermatology and Venereology</td>
<td>Original Article</td>
<td>In this prospective group of patients with chilblain-like lesions, 19 patients, all adolescents (mean age: 14 years), were recruited. 11/19 (58%) of them and/or their cohabitants reported flu-like symptoms one to two months prior to skin manifestation onset. Lesions were localized to toes and also heels and soles. Video-capillaroscopy showed pericapillary edema, dilated and abnormal capillaries, and microhemorrhages. Major pathological findings that distinguish these lesions from idiopathic pemiosis include</td>
<td>History data and the detection of anti-SARS-CoV-2 IgA in patients with chilblain-like lesions in this study strongly suggest a relationship between</td>
<td>El Hachem M, Dociialiutì A, Concato C, et al. A clinical, histopathological and laboratory study of 19 consecutive Italian paediatric patients with chilblain-like lesions: lights</td>
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<td>Economic impact, children, low resources</td>
<td>30-May-20</td>
<td>COVID-19, economic impact and child mortality: A global concern</td>
<td>Clinical Nutrition</td>
<td>The COVID-19 outbreak has shattered the world’s economic giants with an estimated loss of $1 trillion during 2020. This economic dent could have drastic effects on people living in extreme poverty. As in the year 2019, top donor countries of humanitarian aid and the World Food Program were the USA, Germany, UK, and the European Commission. Unfortunately, these countries were badly hit by the COVID-19 pandemic. As a result, economies of these countries are badly affected and over 80 countries have already requested the IMF for financial aid including the USA and others. This economic dip will have a future impact on different humanitarian programs. Most countries of the world are under lockdown and this is causing food shortage in markets and price inflation. Children already facing undernutrition are now more vulnerable than ever and are currently under high risk of acquiring COVID-19. Appropriate deployment of funds, timely preventive measures, and right initiatives are required.</td>
<td>This letter argues that COVID-19 adversely affects the economies worldwide, having a future impact on humanitarian programs and threatening children in poverty.</td>
<td>Kabir M, Saqib MAN, Zaid M, Ahmed H, Afzal MS. COVID-19, economic impact and child mortality: A global concern. Clin Nutr. 2020;39(7):2322-2323. doi:10.1016/j.clnu.2020.05.027</td>
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<td>Pregnancy, platelets, blood counts, France</td>
<td>30-May-20</td>
<td>Thrombocytopenia in pregnant patients with mild COVID-19</td>
<td>International Journal of Obstetric Anesthesia</td>
<td>Case Report</td>
<td>The authors present three pregnant patients with mild COVID-19 and thrombocytopenia at a single center in France. To their knowledge, these are the first reports of thrombocytopenia during pregnancy related to mild COVID-19. None of the patients required a platelet transfusion, and none developed severe COVID-19 requiring intensive care. The authors argue against the presence of gestational thrombocytopenia or pre-eclampsia in these patients. In conclusion, the authors state that pregnant patients with mild COVID-19 should also have a recent platelet count to help guide decision-making before insertion of an epidural catheter.</td>
<td>In this article, the authors present the first reports of thrombocytopenia associated with mild COVID-19 in pregnancy. This has implications for epidural analgesia in this patient population.</td>
<td>Le Gouez A, Vivanti AJ, Benhamou D et al. Thrombocytopenia in pregnant patients with mild COVID-19 [published online, 2020 May 30]. Int J Obstet Anesth. doi:10.1016/j.ioba.2020.05.016</td>
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<td>Children, clinical course, antiviral therapy, interferon α-2b, China</td>
<td>30-May-20</td>
<td>Clinical Features and the Treatment of Children With COVID-19: A Case Series From Wenzhou, China</td>
<td>Journal of Medical Virology</td>
<td>Letter to the Editor</td>
<td>Three children (2-12 years) with COVID-19 were prospectively followed from hospital admission to discharge; all were in close contact with confirmed cases of COVID-19. Their initial symptoms were non-specific and varied from persistent fever to cough. Overall the clinical presentation, prognosis and radiological changes observed were milder and resolved quicker than those of adults. Antiviral therapy and interferon α-2b appeared successful in relieving symptoms in these children.</td>
<td>The present case series described mild clinical course in children with COVID-19, treated with antiviral therapy and interferon α-2b.</td>
<td>Cai J, Sun W, Huang J, Gamber M, Wu J, He G. Clinical features and the treatment of children with COVID-19: A case series from Wenzhou, China [published online 2020 May 30]. J Med Virol. doi:10.1002/jmv.26092</td>
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<td>Children, age-related mortality, all-deaths, epidemiology, Europe, USA, South Korea</td>
<td>30-May-20</td>
<td>Children’s Mortality From COVID-19 Compared With All-Deaths and Other Relevant Causes of Death: Epidemiological Information for Decision-Making by Parents, Teachers, Clinicians and Policymakers</td>
<td>Public Health</td>
<td>Letter to the Editor</td>
<td>The authors synthesized information on COVID-19 in relation to other causes of death in line with a previous call for increased focus on age-specific mortality. They collated age-specific data on COVID-19 deaths from official government sources for seven countries up to May 8–19, 2020. For this time period, in these seven countries combined, 44 COVID-19 deaths were reported in 42,846 confirmed cases (this latter number is likely to be a massive underestimate; data were not available for France) in those aged 0–19 years (0–14 years in USA). This compares with 13,200 estimated deaths from all-causes. The situation in each country was almost identical, and in accordance with early data from China i.e. COVID rarely kills children, even compared with influenza, against which many children are already vaccinated.</td>
<td>Data from seven countries show that mortality due to COVID-19 is similar to flu, or less severe, in children whilst being the opposite in adults.</td>
<td>Bhopal S, Bagaria J, Bhopal R. Children’s mortality from COVID-19 compared with all-deaths and other relevant causes of death: epidemiological information for decision-making by parents, teachers, clinicians and policymakers [published online 2020 May 30]. Public Health. doi:10.1016/j.puhe.2020.05.047</td>
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<td>Children, malnutrition, hunger, economic crisis, developing countries</td>
<td>30-May-20</td>
<td>COVID-19, Economic Impact and Child Mortality: A Global Concern</td>
<td>Clinical Nutrition</td>
<td>Letter to the Editor</td>
<td>There is significant correlation between age and poly-morbidity due to COVID-19, and these factors are independently associated with malnutrition and its negative impact on patient survival. The economic impact of the COVID-19 outbreak, particularly on top donor countries of humanitarian aid, could have drastic effects on people living in extreme poverty. Undernutrition causes 45% of deaths in children less than 5 years of age, and reports have estimated that over 2 million lives of children are under high risk due to undernutrition in coming months. Appropriate deployment of funds, timely preventive measures and right initiatives are needed to prevent future human crisis.</td>
<td>The COVID-19 pandemic has placed millions of children at risk for undernutrition, as top donor countries face economic crises.</td>
<td>Kabir M, Saqib MAN, Zaid M, Ahmed H, Afzal MS. COVID-19, economic impact and child mortality: A global concern [published online 2020 May 30]. Clin Nutr. doi:10.1016/j.clnu.2020.05.027</td>
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<td>Human milk samples, breastfeeding, viral transmission</td>
<td>30-May-20</td>
<td>Detectable Severe Acute Respiratory Syndrome Coronavirus 2</td>
<td>Clinical Infectious Diseases</td>
<td>Brief Report</td>
<td>In this case, a 40-year-old female with mild clinical symptoms tested positive for SARS-CoV-2 on RT-PCR testing of a combined oro/nasopharyngeal swab. Her 8-month-old son, who had been breastfed until the day of maternal symptom onset, also tested positive for SARS-CoV-2; upon confirmed SARS-CoV-2 infection in the infant, breastfeeding was resumed with no adverse reaction. This case report describes an actively breastfeeding patient with SARS-CoV-2 infection with</td>
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<td>Tam PCK, Ly KM, Kernich ML, et al. Detectable severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in human breast milk of a</td>
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<td>Human milk, breastfeeding, human coronaviruses, assay validation</td>
<td>30-May-20</td>
<td>SARS-CoV-2 and Human Milk: What is the Evidence?</td>
<td>Maternal &amp; Child Nutrition</td>
<td>Review Article</td>
<td>There is limited published literature related to vertical transmission of any human coronaviruses via human milk and/or breastfeeding. Results of the present literature search revealed a single study providing some evidence of vertical transmission of human coronavirus 229E; a single study evaluating presence of SARS-CoV in human milk (it was negative); and no published data on MERS-CoV and human milk. In total, 13 studies reporting human milk tested for SARS-CoV-2 were identified; one study detected the virus in one milk sample, and another study detected SARS-CoV-2 specific IgG in milk. Importantly, none of the studies on coronaviruses and human milk report validation of their collection and analytical methods for use in human milk. In addition, little remains known about the timing of antibody response in human milk to SARS-CoV-2 infection. Future research should utilize validated methods and focus on both potential risks and protective effects of breastfeeding.</td>
<td>Limited reports on the presence of human coronaviruses, including SARS-CoV-2, in human milk are described; these studies do not report methods of sample collection or validation of assays for human milk.</td>
<td>Lackey KA, Pace RM, Williams JE, et al. SARS-CoV-2 and human milk: What is the evidence? [published online 2020 May 30]. Matern Child Nutr. doi:10.1111/mcn.13032</td>
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<td>Children, myocardial injury, congenital heart disease, systematic review</td>
<td>30-May-20</td>
<td>Children’s Heart and COVID-19: Up-to-date Evidence in the Form of a Systematic Review</td>
<td>European Journal of Pediatrics</td>
<td>Review</td>
<td>Myocardial injury in adult patients with COVID-19 has been linked to fatal outcomes, but scientific evidence in children is sparse. In this systematic review, 46 papers were included. Even though SARS-CoV-2 infection in childhood is less common and milder than when occurring in adults, it is not without risk of cardiac involvement, especially in patients with a background of congenital heart disease. In newborns and children, previous cardiac surgery is related with increased risk of a more severe form of the disease, being admitted to intensive care unit, and needing intubation as well as mechanical ventilation. In addition, conversely to adulthood, the role of troponin in identifying and quantifying myocardial damage is less definite in children, due to a limited number of studies addressing this issue.</td>
<td>This systematic review is aimed at summarizing all pediatric cases of COVID-19 with cardiac involvement, which is often found in those with congenital heart disease.</td>
<td>Sanna G, Serrau G, Bassareo PP, Neroni P, Fanos V, Marcialis MA. Children’s heart and COVID-19: Up-to-date evidence in the form of a systematic review [published online 2020 May 30]. Eur J Pediatr. doi:10.1007/s00431-020-03699-0</td>
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<td>Child, cutaneous manifestation, skin rash, Russia</td>
<td>30-May-20</td>
<td>Cutaneous Manifestations in COVID-19: A Skin Rash in a Child</td>
<td>Dermatologic Therapy</td>
<td>Letter</td>
<td>In mid-April, a 12-year-old girl presented with a two-day history of fever; her RT-PCR test for SARS-CoV-2 was positive. On the third day of illness, the fever dramatically ceased, and a skin rash appeared. Examination revealed purpuric eruptions and erythematous macula rashes of 3 to 4mm in size, on the upper eyelids, above the eyebrows and in the temporal region. Her tongue was also slightly swollen and irritated. The described eruptions were asymptomatic and completely disappeared within three days without treatment.</td>
<td>This case report confirms skin manifestations of SARS-CoV-2 infection in a child, while noting rare involvement of the oral mucous membranes.</td>
<td>Olsøva OY, Anpiłogova EM, Shnakhova LM. Cutaneous manifestations in COVID-19: a skin rash in a child [published online 2020 May 30]. Dermatol Ther. doi:10.1111/dth.13712</td>
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<td>Maternal mortality, comorbidities, case fatality rate, Mexico</td>
<td>30-May-20</td>
<td>Maternal Mortality From COVID-19 in Mexico</td>
<td>International Journal of Gynecology &amp; Obstetrics</td>
<td>Brief Communication</td>
<td>A total of 45,219 cases of COVID-19 have been confirmed in Mexico, as of May 17, 2020. Using open data from the Mexican Ministry of Health to conduct a search for COVID-19 positive cases among pregnant women, 308 cases were identified including seven maternal deaths. Compared to obstetric COVID-19 patients who survived, women who suffered maternal mortality were older and had higher prevalence of diabetes, obesity, and other comorbidities. Of the seven maternal death cases, only two received intensive care, and only one received mechanical ventilation. Known exposure to COVID-19 was low in both groups, suggesting lower overall COVID-19 testing and tracing capacity in the population.</td>
<td>The present study reports a 2.3% case fatality among parturient women with COVID-19 in Mexico.</td>
<td>Lumbreras-Marquez MI, Campos-Zamora M, Liaza-Díaz de León H, Farber MK. Maternal mortality from COVID-19 in Mexico [published online 2020 May 30]. Int J Gynaecol Obstet. doi:10.1002/ijgo.13250</td>
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<td>Pregnancy, prevalence, universal obstetric screening, Seattle, USA</td>
<td>30-May-20</td>
<td>Low Prevalence of SARS-CoV-2 Among Pregnant and Postpartum Patients With Universal Screening in Seattle, Washington</td>
<td>Clinical Infectious Diseases</td>
<td>Brief Report</td>
<td>After initiating universal SARS-CoV-2 PCR testing of labor and delivery patients at medical centers in Seattle, WA, USA, the authors found a low prevalence of SARS-CoV-2 (2.7% [5/188]) among pregnant and postpartum patients. Prevalence among asymptomatic patients (22.2% [4/18]) was similar to initial targeted screening approaches (19.1% [8/42]). Among 170 asymptomatic patients, two were positive or inconclusive, respectively; repeat testing at 24 hours was negative. Despite low numbers of additional cases identified, universal screening of pregnant patients provides important surveillance information due to the representativeness of this population to the greater community.</td>
<td>A low prevalence of SARS-CoV-2 among pregnant and postpartum patients was determined after initiating universal testing at hospitals in Washington state (USA).</td>
<td>LaCourse SM, Kachikis A, Blain M, et al. Low prevalence of SARS-CoV-2 among pregnant and postpartum patients with universal screening in Seattle, Washington [published online 2020 May 30]. Clin Infect Dis. doi:10.1093/cid/ciaa675</td>
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<td>High-risk pregnancy, neurological manifestation, preeclampsia, eclampsia, liberal testing</td>
<td>30-May-20</td>
<td>Coronavirus disease-2019 in Pregnancy With Neurological Manifestations Versus Pregnancy With Eclampsia: Need for Liberal Testing to Rule Out the Masquerades</td>
<td>Acta Obstetrica et Gynecologica Scandinavica</td>
<td>Letter to Editor</td>
<td>The authors agree with Gidløf et al. and their call for more liberal testing guidelines in women with high-risk pregnancies. A severe complication of preeclampsia is eclampsia, and presentations include neurological manifestations such as headache, seizures, loss of consciousness, along with raised blood pressure. Similar manifestations have been reported in patients with COVID-19, suggesting three possible scenarios: pregnant women with COVID-19 and neurological manifestations mimicking eclampsia; COVID-19 complicating preeclampsia/eclampsia; and pregnancy with eclampsia without COVID-19. Each scenario has different implications for management and infection control strategies, but all require screening and COVID-19 testing for all pregnant women presenting with neurological manifestations.</td>
<td>COVID-19 screening and testing of all pregnant women presenting with neurological manifestations, which may reflect preeclampsia or eclampsia, is necessary to implement proper management and infection control strategies.</td>
<td>Singh S. Coronavirus disease-2019 in pregnancy with neurological manifestations versus pregnancy with eclampsia: Need for liberal testing to rule out the masquerades [published online 2020 May 30]. Acta Obstet Gynecol Scand. doi:10.1111/aogs.13927</td>
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<td>Children, epidemiology, pathogenesis, Kawasaki-like disease, policy</td>
<td>30-May-20</td>
<td><em>It’s True Even in a Pandemic: Children Are Not Merely Little Adults</em></td>
<td>Clinical Infectious Diseases</td>
<td>Editorial Commentary</td>
<td>Children appear to be less affected by COVID-19 than adults. In addition, intrauterine transmission appears to be extremely uncommon, and newborns born to infected mothers are likely to experience either asymptomatic or mild disease. These observations raise the hypothesis that dysregulated host responses may be the primary driver of disease severity. Reports have also emerged of a Kawasaki-like illness among children and associated with SARS-CoV-2 infection. This editorial also outlines implications of these early reports of pediatric COVID-19 for healthcare workers and public policymakers.</td>
<td>This editorial presents a summary of available data on the epidemiology and pathogenesis of pediatric COVID-19 and implications for re-opening policies.</td>
<td>Creech CB. <em>It’s True Even in a Pandemic: Children are Not Merely Little Adults</em> [published online 2020 May 30]. Clin Infect Dis. doi:10.1093/cid/ciaa680</td>
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<td>Social media, health information, misinformation, pregnancy, maternal health, Turkey</td>
<td>29-May-20</td>
<td>Healthcare information on YouTube: Pregnancy and COVID-19</td>
<td>International Journal of Gynecology &amp; Obstetrics</td>
<td>Clinical article</td>
<td>YouTube videos are increasingly popular and easily accessible sources of COVID-19 information for pregnant women. The authors compiled Turkish language videos on YouTube about COVID-19 and pregnancy, collected data on ranking and information source, and scored them based on usefulness (DISCERN score) and quality of content (MICI score). 76 videos had a total of 1,494,860 views, with 40,849 likes and 575 dislikes. Videos were designated as &quot;informative&quot; (n=45), &quot;misleading&quot; (n=0), &quot;personal experience&quot; (n=15), and &quot;news update&quot; (n=16). The main sources of information in &quot;informative&quot; videos were physicians (73%), and news agencies (20%) and the majority of these targeted patients. The DISCERN scores were low for the &quot;informative&quot; (2.9 ± 1.4), &quot;personal experience&quot; (1.6 ± 0.9), and &quot;news update&quot; (1.9 ± 0.9) groups, indicating the content was generally not useful. The mean MICI score for informative videos was low as well (5.3 ± 2.8) indicating low quality of content. The authors conclude that Turkish videos about pregnancy and COVID-19 have high view rates, and although at the time of this study none were &quot;misleading&quot; or in conflict with current guidelines, they were found to be generally low in quality and trustworthiness. Future education efforts should take advantage of the popularity and accessibility of online videos to ensure consistent, quality information.</td>
<td>This study analyzed Turkish language YouTube videos about COVID-19 and pregnancy. The authors conclude that while these videos are popular, they are generally low in quality and trustworthiness. None were found to contradict current guidelines.</td>
<td>Yuksel B, Cakmak K. Healthcare information on YouTube: Pregnancy and COVID-19 [published online, 2020 May 29]. Int J Gynaecol Obstet. 2020;150(2):189-193. doi:10.1002/ijgo.13246</td>
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<td>Contact tracing, serology, zoonoses</td>
<td>29-May-20</td>
<td>Investigation and Serologic Follow-Up of Contacts of an Early Confirmed Case-Patient with COVID-19, Washington, USA</td>
<td>Emerging Infectious Disease</td>
<td>Synopsis</td>
<td>In this article, the authors described the contact investigation for a 35-year-old man of COVID-19, confirmed on January 20, 2020 in the USA. He returned home to Washington from Wuhan on January 15th, 2020. Contacts of the case-patient were identified, actively monitored for symptoms, interviewed for a detailed exposure history, and tested for SARS-CoV-2 infection by rRT-PCR and ELISA. Fifty contacts were identified and 38 (76%) were interviewed, of whom 11 (29%) reported unprotected face-to-face interaction with the case-patient. Thirty-seven (74%) had respiratory specimens tested negative by rRT-PCR. Twenty-three (46%) had ELISA performed on serum samples collected around 6 weeks after exposure, and none had detectable antibodies to SARS-CoV-2. Among contacts who were tested, the authors concluded that no secondary transmission was identified in this investigation, despite unprotected close interactions with the infectious case-patient.</td>
<td>This article described the contact investigation for a 35-year-old man of COVID-19 in the USA and identified no secondary cases among close contacts of this early US COVID-19 case-patient by molecular or serologic methods.</td>
<td>Chu VT, Freeman-Ponder B, Lindquist S, et al. Investigation and Serologic Follow-Up of Contacts of an Early Confirmed Case-Patient with COVID-19, Washington, USA. Emerg Infect Dis. 2020;26(8):1671-1678. doi:10.3201/eid2608.201423</td>
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<td>Gestational diabetes, pregnancy, screening, Italy</td>
<td>29-May-20</td>
<td>Italian recommendation s for the diagnosis of gestational diabetes</td>
<td>Nutrition, Metabolism, and Cardiovascular Diseases</td>
<td>Viewpoint</td>
<td>The authors provide a temporary guide for gestational diabetes mellitus (GDM) screening in Italy, specifically in response to the COVID-19 pandemic, to help guide practitioners when it is not possible to implement standard GDM screening because of an unfavorable risk/benefit ratio for pregnant women or when usual laboratory facilities are not available. They</td>
<td>The authors provide recommendations from Italian professional societies for modifications in diagnosis of gestational diabetes during COVID-19.</td>
<td>Torlone E, Festa C, Formoso G, et al. Italian recommendations for the diagnosis of gestational diabetes during COVID-19.</td>
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<td>Pregnancy, pancreatitis, gastrointestinal symptoms, USA</td>
<td>29-May-20</td>
<td>COVID-19 Infection Presenting as Pancreatitis in a Pregnant Woman: A Case Report</td>
<td>Case Reports in Women’s Health</td>
<td>Case Report</td>
<td>A 36-year-old woman (gravida 4 para 2) at 33 weeks of gestation presented very early in the COVID-19 course with four days of cough and fever, without recent travel or known exposure. She appeared well, with stable vital signs and was sent home to self-quarantine after a specimen for COVID-19 testing was collected. Two days later, she presented with nausea, vomiting, and abdominal pain, and was diagnosed with acute pancreatitis. To date, no cases of human pancreatitis have been identified in relation to COVID-19, although multiple other gastrointestinal symptoms have been described. Given the lack of other etiology, the possibility that the patient’s acute pancreatitis could be secondary to COVID-19 should be considered.</td>
<td>Nausea, vomiting, and epigastric pain in pregnancy should be thoroughly evaluated, as COVID-19 presentation may include gastrointestinal symptoms.</td>
<td>Rabice SR, Altschuler PC, Bovet C, Sullivan C, Gagnon AJ. COVID-19 infection presenting as pancreatitis in a pregnant woman: A case report. Case Rep Womens Health. 2020;27:e00228. doi:10.1016/j.crwh.2020.e0228</td>
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<tr>
<td>Pregnancy, risk perceptions, knowledge, breastfeeding, China</td>
<td>29-May-20</td>
<td>The outbreak of coronavirus disease in China: Risk perceptions, knowledge, and information sources among prenatal and postnatal women</td>
<td>Women and Birth</td>
<td>Original Research</td>
<td>Using cross-sectional survey design, a four-section online questionnaire was administered to 161 prenatal and postnatal women during the COVID-19 outbreak in Nanjing, China, in February 2020. The participants perceived their risk of contracting and dying from COVID-19 to be lower than their risk of contracting influenza, however many of them were worried that they might contract COVID-19. The participants demonstrated adequate knowledge about COVID-19. The three major sources from which they obtained information about COVID-19 were doctors, nurses/midwives, and the television. The majority of women thought neonates of pregnant women with suspected or confirmed COVID-19 should be isolated for at least 14 days after birth and that women with suspected or confirmed COVID-19 should not breastfeed their neonates.</td>
<td>Although surveyed prenatal and postnatal women demonstrated adequate knowledge about COVID-19, they had misunderstood some of the WHO recommendations.</td>
<td>Lee TY, Zhong Y, Zhou J, He X, Kong R, Ji J. The outbreak of coronavirus disease in China: Risk perceptions, knowledge, and information sources among prenatal and postnatal women [published online 2020 May 29]. Women Birth. doi:10.1016/j.wombi.2020.05.010</td>
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<td>Pregnancy, placenta, intra-uterine vertical transmission, cavoelin, syncytio-trophoblasts</td>
<td>29-May-20</td>
<td>Factors Preventing Materno-Fetal Transmission of SARS-CoV-2</td>
<td>Placenta</td>
<td>Original Article</td>
<td>Although many pregnant women have been infected by SARS-CoV-2, the presence of intrauterine vertical transmission has not been conclusively reported yet. What prevents this highly contagious virus from reaching the fetus? Is it only the presence of a strong placental barrier, or is it the natural absence of some receptor that the viruses use for transmission? The barriers selected as potential targets by SARS-CoV-2 are the alveolo-capillary barrier (ACB), and the syncyto-capillary barrier (SCB). Caveolae are omega-shaped structures located on the cell membrane. They consist of cavoelin-1 protein (Cav-1) and are involved in the internalization of some viruses. By activating leukocytes and nuclear factor-κB, Cav-1 initiates inflammatory reactions. The presence of more than one Cav-1 binding sites on coronavirus is an important finding supporting the possible relationship between SARS-CoV-2-mediated lung injury. While the ACB cells express Cav-1, there is no cavoelin expression in syncyto-trophoblasts. This review explains the hypothesis that lack of cavoelin expression in the SCB is one of the most important physiological mechanisms that prevents vertical transmission of SARS-CoV-2. Since the physiological Cav-1 deficiency appears to prevent acute cell...</td>
<td>The authors hypothesize that the absence of cavoelin-1 protein (used for viral internalization) in syncyto-trophoblast cell membranes may prevent intrauterine transmission of SARS-CoV-2.</td>
<td>Celik O, Saglam A, Baysal B, et al. Factors preventing materno-fetal transmission of SARS-CoV-2 [published online 2020 May 29]. Placenta. doi:10.1016/j.placenta.2020.05.012</td>
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<tr>
<td>29-May-20</td>
<td>COVID-19 Infection During the Third Trimester of Pregnancy: Current Clinical Dilemmas</td>
<td>European Journal of Obstetrics &amp; Gynecology and Reproductive Biology</td>
<td>Letter to the Editor</td>
<td>Two cases of third-trimester SARS-CoV-2 infection from two different European countries are presented in this report. Patient A is a 38-year-old woman with diet-controlled gestational diabetes, who presented with cough, dyspnea, and oxygen desaturation. A CT scan showed bilateral ground-glass opacities, and while an initial nasopharyngeal swab was negative for SARS-CoV-2, a second sample was found to be positive. Antenatal corticosteroids for fetal lung maturation were administered. The patient's symptoms rapidly improved and was discharged on day 5. Patient B is a 29-year-old woman who presented with cough, sore throat, and diarrhea. While a SARS-CoV-2 swab result was pending, cesarean delivery was performed in view of maternal fever, fetal tachycardia, and previous cesarean section. On day 4 post-delivery, the SARS-CoV-2 swab returned positive. Decisions surrounding clinical management and multi-disciplinary considerations concerning time of delivery, use of antenatal corticosteroids and thromboprophylaxis in these two cases are discussed in this report.</td>
<td>Appropriate management of pregnant patients with COVID-19 should be evaluated on a case-by-case basis.</td>
<td>Fontanella F, Hannes S, Keating N, et al. COVID-19 infection during the third trimester of pregnancy: Current clinical dilemmas [published online 2020 May 29]. Eur J Obstet Gynecol Reprod Biol. doi:10.1016/j.ejogrb.2020.05.053</td>
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<td>29-May-20</td>
<td>Lung Ultrasound for Pregnant Women Admitted to ICU for Covid-19 Pneumonia</td>
<td>Edizioni Minerva Medica</td>
<td>Letter to the Editor</td>
<td>Chest radiography is the most common tool used to diagnose COVID-19 and monitor disease. However, minimizing exposure to radiation during pregnancy is considered a very important goal in treatment. Therefore, based on well-established practice in critical care settings, the authors implemented lung ultrasound to obtain bedside lung imaging and monitor respiratory conditions in pregnant patients with COVID-19 in the intensive care unit (ICU) at a tertiary care hospital in Lombardy, Italy. Daily assessments of patients' Lung Ultrasound Score (LUS) in six specific areas in each lung were performed. Median values of LUS (total score ranging from 0 to 36) upon admission to and discharge from the ICU were 20.5 and 13 respectively.</td>
<td>Lung ultrasound proved to be a sensitive and reliable tool to track the clinical evolution of pregnant patients' respiratory conditions, while complementing standard ultrasound imaging, in this report from Italy.</td>
<td>Giannini A, Mantovani A, Vezzoli C, Franchini D, Finazzi P. Lung ultrasound for pregnant women admitted to ICU for Covid-19 pneumonia [published online 2020 May 29]. Minerva Anestesiol. doi:10.23736/S0375-9393.20.14726-6</td>
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<td>29-May-20</td>
<td>Breastfeeding During the COVID-19 Pandemic: Suggestions on Behalf of Woman Study Group of AMD</td>
<td>Diabetes Research and Clinical Practice</td>
<td>Review</td>
<td>Breastfeeding improves the health of mother and child and reduces risk of neonatal infection with other pathogens that are likely to cause serious illness. To date, no evidence has confirmed COVID-19 vertical transmission from infected mother to fetus. However, it is well known that an infected mother can transmit the SARS-CoV-2 virus through respiratory droplets during breastfeeding or intimate contact. Thus, mothers with known or suspected COVID-19 should adhere to standard and contact precautions during breastfeeding. After reviewing current knowledge about COVID-19 vertical transmission and the compatibility of breastfeeding in COVID-19 positive mothers, the Woman Study Group of AMD has compiled available recommendations, from health care organizations and expert opinions, to facilitate mother-newborn interaction and the initiation of breastfeeding, addressing both mothers with and without diabetes.</td>
<td>A summary of recommendations in support of breastfeeding in mothers with suspected or confirmed COVID-19 is presented.</td>
<td>Giuliani C, Li Volpi P, Brun E, et al. Breastfeeding during the COVID-19 pandemic: suggestions on behalf of Woman Study Group of AMD [published online 2020 May 29]. Diabetes Res Clin Pract. doi:10.1016/j.diabres.2020.108239</td>
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<td>29-May-20</td>
<td>The First Pediatric Patients With Coronavirus Disease 2019 (COVID-19) in Japan</td>
<td>Japanese Journal of Infectious Diseases</td>
<td>Short Communication</td>
<td>In February 2020, three children were diagnosed with COVID-19 in Furano, Hokkaido, Japan. During this period, influenza and human metapneumovirus infections were prevalent among children in the Furano region. Two of the three cases experienced co-infection with other respiratory viruses, including influenza virus A or human metapneumovirus. To the authors' knowledge, the cases described in the present report were the first pediatric cases of COVID-19 in Japan, to the authors' knowledge, and notes the possibility of co-</td>
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 damage, treatment algorithms could potentially be developed to block this pathway in the non-pregnant population affected by SARS-CoV-2.
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<td>Japan: The Risk of Co-Infection With Other Respiratory Viruses</td>
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<td>patients with COVID-19 in Japan. In children with COVID-19, the possibility of co-infection with other respiratory pathogens should be considered.</td>
<td>infection with other respiratory pathogens.</td>
<td>doi:10.1111/pai.13298</td>
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<td>Pediatrics, high-volumes testing, drive-through, Philadelphia, USA</td>
<td>29-May-20</td>
<td>Drive-Through COVID-19 Testing During the 2020 Pandemic: A Safe, Efficient and Scalable Model for Pediatric Patients and Healthcare Workers</td>
<td>Academic Pediatrics</td>
<td>Healthcare Innovations</td>
<td>This report outlines a team's approach, process, and lessons learned in developing a pediatric-focused high-volume COVID-19 testing site in Philadelphia, PA, USA. The site also prioritized testing employees in an effort to return healthy individuals to work and limit workplace transmission. Drive-through testing has several advantages: it promotes social distancing, prevents infectious individuals from entering a closed building, and offers efficiency and convenience to families. Between March 18 and March 31, 2020, the site completed 901 tests with a positive rate of 8.5% compared to the citywide rate of 20%. During the study period, 26% of patients tested were under 18 years old, and the peak age range for tested patients was 30 to 39 years old.</td>
<td>This article shares one team's development of a pediatric-focused drive-through COVID-19 testing center and discusses how this process can inform future pediatric public health efforts.</td>
<td>Flynn EF, Kuhn E, Shaik M, Tarr E, Scattolini N, Ballantine A. Drive-Through COVID-19 Testing During the 2020 Pandemic: a safe, efficient, and scalable model for pediatric patients and healthcare workers [published online 2020 May 29]. Acad Pediatr. doi:10.1016/j.acap.2020.05.018</td>
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<tr>
<td>Children, age-related susceptibility, ACE2, cross-protection, immunity</td>
<td>29-May-20</td>
<td>Higher Prevalence of Asymptomatic or Mild COVID-19 in Children, Claims and Clues</td>
<td>Journal of Medical Virology</td>
<td>Commentary</td>
<td>While children of different age groups are vulnerable to SARS-CoV-2 infection, they mostly experience either an asymptomatic or mild form of disease compared with adults. Plausible explanations for this phenomenon are discussed in this article, related to level of ACE2 receptor expression, childhood vaccination and potential cross-protection against COVID-19, and differences in innate and adaptive immunity.</td>
<td>Possible mechanisms underlying lower prevalence and milder COVID-19 disease in children, compared to adults, are described.</td>
<td>Miri SM, Noorbakhsh F, Mohebbi SR, Ghaemi A. Higher prevalence of asymptomatic or mild COVID-19 in children, claims and clues [published online 2020 May 29]. J Med Virol. doi:10.1002/jmv.26069</td>
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<td>Age-related difference, trained immunity, adaptive memory, BCG vaccination</td>
<td>29-May-20</td>
<td>The Perplexing Question of Trained Immunity Versus Adaptive Memory in COVID-19</td>
<td>Journal of Medical Virology</td>
<td>Review</td>
<td>Apart from geographic limitation to people with prior exposure to other coronaviruses and air pollutants, inflammatory comorbidities and older ages are also among the main factors of susceptibility to severe illness. The unusual epidemiological data pointed out in children and African territories have revealed new insights in host-pathogen interplay with more focus on epigenetic regulation of cognitive compartments belonging to innate immunity. Should trained immunity be proven to be involved in timely immune responsiveness against SARS-CoV-2 and that adaptive memory could be detrimental, both treatment regimens and vaccine design will tremendously change accordingly with more focus on upper respiratory tissue innate immunity to subdue this threat underway.</td>
<td>This article addresses the wide spectrum of symptoms observed in COVID-19 through the framework of trained immunity (in children) and adaptive immune enhancement (in older ages).</td>
<td>Kerboua KE. The perplexing question of trained immunity versus adaptive memory in COVID-19 [published online 2020 May 29]. J Med Virol. doi:10.1002/jmv.26083</td>
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<td>Children, African American, Hispanic, demographic risk factors, Chicago, USA</td>
<td>29-May-20</td>
<td>African American Children Are at Higher Risk for COVID-19 Infection</td>
<td>Pediatric Allergy and Immunology</td>
<td>Letter to the Editor</td>
<td>Recent evidence suggests there are higher rates of COVID-19 and related fatality rates in African American adult communities around the United States. However, there is limited data as to whether any race or ethnicity group is at higher risk for COVID-19 infection in children. In this study, over a five-week period from March to April 2020, 474 children (&lt;18 years) were evaluated and tested; and 5.2% of children were found to be positive for COVID-19. Minority racial/ethnic groups were significantly associated with COVID-19 positive test results. Compared with non-Hispanic whites, African American children had a significantly higher rate of positive test (1.7% vs. 6.8% respectively, p=0.046). Hispanic children had a trend towards higher rate of positive COVID-19 test compared with their non-Hispanic white</td>
<td>Findings from this study suggest that African American children are not only at higher risk for SARS-CoV-2 infection but may also be at higher risk for more severe infection once hospitalized.</td>
<td>Bandi S, Nevid MZ, Mahmudinia M. African American children are at higher risk for COVID-19 infection [published online 2020 May 29]. Pediatr Allergy Immunol. doi:10.1111/pai.13298</td>
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<tr>
<td>Women, children, essential services, pandemic response</td>
<td>Covid-19: Millions of Women and Children at Risk as Visits to Essential Services Plummet</td>
<td>The BMJ</td>
<td>News</td>
<td>During a high-level meeting organized by the United Nations (UN) Every Woman Every Child initiative and advocacy groups, the UN has predicted that 47 million women could lose access to contraception resulting in 7 million additional unintended pregnancies over the next six months due to COVID-19. There could also be 31 million additional cases of gender-based violence in low- and middle-income countries. Disruptions in medical supply chains and strained financial and human resources, as well as lockdowns and transport disruptions, have led to declines in healthcare visits and deliveries in health institutions. Leaders at the UN meeting call for national policies and budgets to protect human rights, to focus on strengthening health systems, and invest in multi-stakeholder partnership.</td>
<td>Disruptions in medical supply chains, transportation, and the implementation of lockdowns during the COVID-19 pandemic threaten access to essential services for women and children in countries with already weak health systems.</td>
<td>Thornton J. Covid-19: Millions of women and children at risk as visits to essential services plummet. BMJ. 2020;369:m2171. doi:10.1136/bmj.m2171</td>
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<td>Pregnancy, delivery, delayed cord clamping, breastfeeding</td>
<td>Delayed umbilical cord clamping and breastfeeding after childbirth in mothers affected by COVID-19: Recommended or not?</td>
<td>European Journal of Obstetrics and Gynecology and Reproductive Biology</td>
<td>Correspondence</td>
<td>The authors express that the insufficient evidence thus far for vertical transmission of SARS-CoV-2 from mother to fetus or newborn is not reliable due to the novelty of the virus and vulnerability of the fetus. From this, the authors conclude that since respiratory droplets are a major route of mother to infant transmission during the delivery process, early cord clamping, immediate isolation of the newborn, and lack of skin-to-skin contact can reduce infection risk to the newborn. They also express that if the mother's health permits it, she could breastfeed her newborn with proper precautions in place.</td>
<td>The authors argue for early cord clamping, immediate isolation of the newborn, and lack of skin-to-skin contact to minimize transmission of SARS-CoV-2 from mother to newborn by respiratory droplets following delivery.</td>
<td>Kohan S, Rahnemaei FA. Delayed umbilical cord clamping and breastfeeding after childbirth in mothers affected by COVID 19: Recommended or not?. Eur J Obstet Gynecol Reprod Biol. 2020;250:264. doi:10.1016/j.ejogrb.2020.05.041</td>
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<td>Pregnancy, childbirth, delivery, asymptomatic, universal screening, USA</td>
<td>Universal Screening for SARS-CoV-2 in Women Admitted for Delivery</td>
<td>The New England Journal of Medicine</td>
<td>Letter to the Editor</td>
<td>The obstetrical population presents a unique challenge during the COVID-19 pandemic since these patients have multiple interactions with the healthcare system and most are admitted to the hospital for delivery. The authors report the results of a universal testing strategy from 22 March-4 April 2020 at their center in New York City (NY, USA) for pregnant patients admitted to the hospital for delivery (n=215). They identified four patients (1.9%) who tested positive for SARS-CoV-2 and who had symptoms of COVID-19 on admission. Of 210 women tested who were asymptomatic on admission, 29 (13.7%) were positive for SARS-CoV-2. One patient who was negative for SARS-CoV-2 on admission became symptomatic postpartum, and repeat SARS-CoV-2 testing was positive. The authors conclude that most of the SARS-CoV-2 positive pregnant patients were asymptomatic on admission, which underscores the risk of COVID-19 in asymptomatic obstetrical patients.</td>
<td>In one hospital during the COVID-19 pandemic in New York City, more than 13% of obstetrical patients admitted for delivery were positive for SARS-CoV-2 without symptoms.</td>
<td>Sutton D, Fuchs K, D’Alton M et al. Universal Screening for SARS-CoV-2 in Women Admitted for Delivery. [published online, 2020 May 28]. N. Engl. J. Med. 382:2163-2164. doi:10.1056/NEJMc2009316</td>
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<td>Neonates, cord clamping, breastfeeding, isolation, skin-to-skin contact</td>
<td>Delayed Umbilical Cord Clamping and Breastfeeding After Childbirth in Mothers</td>
<td>European Journal of Obstetrics &amp; Gynecology and Correspondence</td>
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<td>Newborns are more vulnerable to the potential consequence of COVID-19 due to their immature immune systems. Currently, there is insufficient evidence for vertical transmission from mother to fetus via amniotic fluid, umbilical blood or breast milk. Since respiratory droplets are a major route of transmission to the infant during the delivery process, early cord clamping, immediate isolation of the newborn, and lack of skin-to-skin contact can reduce infection risk to the newborn. They also express that if the mother's health permits it, she could breastfeed her newborn with proper precautions in place.</td>
<td>This brief correspondence argues against delayed umbilical cord clamping but in favor of breastfeeding in mothers affected by COVID 19: Recommended or not?</td>
<td>Kohan S, Rahnemaei FA. Delayed umbilical cord clamping and breastfeeding after childbirth in mothers affected by COVID 19: Recommended or not?</td>
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<td>Affected by COVID-19: Recommended or Not?</td>
<td>Reproductive Biology</td>
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<td>contact can reduce the newborn's risk of infection. If a mother is generally well, breastfeeding should be allowed while observing hygiene precautions.</td>
<td>newborns born to mothers with COVID-19.</td>
<td>[published online 2020 May 28]. Eur J Obstet Gynecol Reprod Biol. doi:10.1016/j.ejogrb.2020.05.041</td>
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<tr>
<td>Pregnancy, obstetrical anesthesia, cesarean section, infection control, China</td>
<td>28-May-20</td>
<td>Anesthesia and Infection Control in Cesarean Section of Pregnant Women With COVID-19 Infection: A Descriptive Study</td>
<td>Journal of Clinical Anesthesia</td>
<td>Correspondence</td>
<td>From January 24 to March 15, 2020, there were 3,294 pregnant women who had vaginal or operative deliveries in the Maternal and Children Health Hospital in Wuhan, China, of whom 110 had suspected and confirmed COVID-19 infection. The authors describe an upgraded infection prevention and control practice to limit risk of exposure to SARS-CoV-2 among anesthesiologists when conducting cesarean sections for pregnant women with COVID-19. They report the safety and efficacy of combined spinal-epidural anesthesia and infection control measures on the perinatal care quality of 14 pregnant women with COVID-19. Some minor complications were reported in these patients, but none had severe obstetric complications related to anesthesia or surgery.</td>
<td>No adverse events were noted in this report of the safety and efficacy of infection prevention and control strategies to limit risk of SARS-CoV-2 transmission during obstetrical anesthesia.</td>
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<td>Children, secondary transmission, school settings, Ireland</td>
<td>28-May-20</td>
<td>No Evidence of Secondary Transmission of COVID-19 From Children Attending School in Ireland, 2020</td>
<td>Euro-surveillance</td>
<td>Rapid Communication</td>
<td>In this study, all notifications of SARS-CoV-2 transmission to Public Health Departments prior to school closures (on March 12, 2020) in Ireland were screened and identified 3 infected children and 3 infected adults with history of school attendance. Epidemiological data indicated that all cases were infected outside of the school setting. Among 924 child contacts and 101 adult contacts of these six cases identified, in the school setting, there were no confirmed cases of COVID-19. These findings add to current evidence that children do not appear to be drivers of transmission, thus the authors argue that reopening schools should be considered safe accompanied by certain measures.</td>
<td>No cases of secondary transmission of SARS-CoV-2 in the school setting were identified in this study from Ireland; data support the reopening of schools with appropriate infection control measures.</td>
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<td>Infant, Kawasaki Disease, IV immunoglobulins, California, USA</td>
<td>28-May-20</td>
<td>COVID-19 and Kawasaki Disease: Novel Virus and Novel Case</td>
<td>Hospital Pediatrics</td>
<td>Case Report</td>
<td>A 6-month-old infant, admitted and diagnosed with classic Kawasaki disease, screened positive for COVID-19 in the setting of fever and minimal respiratory symptoms. The patient was treated per treatment guidelines, with IV immunoglobulin and high-dose aspirin, and subsequently fever subsided with resolution of her clinical symptoms. The patient’s initial echocardiogram was normal, and she was discharged within 48 hours of completion of her IV immunoglobulin infusion. In pediatrics, with the clinical spectrum yet to be clearly defined, patients presenting with fever alone or primarily with other organ system involvement may be missed if testing is restricted to those with respiratory complaints alone.</td>
<td>Kawasaki Disease and COVID-19 were diagnosed in a 6-month-old infant with fever and minimal respiratory symptoms.</td>
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<td>Children, age-related susceptibility, resistance, susceptibility, immune response</td>
<td>28-May-20</td>
<td>Resistance of Children to Covid-19: How?</td>
<td>Mucosal Immunology</td>
<td>Comment</td>
<td>Both resistance to SARS-CoV-2 infection and resistance to disease appear to be much stronger in children than in adults. The apparent resistance to infection might actually reflect a more rapid clearance of the virus so that the chance to detect cases is diminished; future studies on seropositivity prevalence should help to distinguish between these possibilities. Major hypotheses explored in this article include more rapid and efficient innate and trained immune response in children, a less intense immunopathological reaction, and greater capacity for tissue repair. Nevertheless, extremely rare severe cases have been observed in children, especially those below the age of 1. Understanding susceptibility/resistance mechanisms can contribute to therapy and vaccine design.</td>
<td>This article reviews existing hypotheses for greater resistance to SARS-CoV-2 infection and/or disease in children compared to adults.</td>
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<td>Children, comorbidities, multi-organ involvement, BAME ethnicity, London, UK</td>
<td>28-May-20</td>
<td>Ethnicity and COVID-19 in children with comorbidities</td>
<td>The Lancet Child &amp; Adolescent Health</td>
<td>Correspondence</td>
<td>In this study, children (aged 0–16 years) with confirmed COVID-19 and comorbidities, who required admission, were prospectively identified from King's College Hospital, London, UK, between February 25 and April 28, 2020. Five children (mean age 7.1 years, range 0.2–15.3 years) with COVID-19 and comorbidities were identified. Two (40%) of five patients were less than 1 year old. The pre-existing comorbidities included cerebral palsy, prematurity, Wilson disease, and dilated cardiomyopathy. Four patients (80%) were from a black, Asian, and minority ethnic (BAME) group. Investigations showed that three patients (60%) had both lymphopenia and thrombocytopenia. Of the four patients that had CRP measurements, three (75%) had elevated measurements. Respiratory support was required in three (60%) of five patients, of which two patients needed mechanical ventilation in the intensive care unit. Liver dysfunction was observed in four patients (80%), although two of these patients had underlying liver conditions, and renal dysfunction was detected in one patient. As of May 20, four patients have been discharged and one is still an inpatient, with a median length of stay of 20 days (range 7–84 days).</td>
<td>In this small cohort of children with comorbidities hospitalized with COVID-19, important themes include: the wide range in severity of the disease, frequent multi-organ involvement, and that most patients were from BAME populations.</td>
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| Children, Kawasaki disease, multisystem inflammatory syndrome, Philadelphia, USA | 28-May-20 | Multisystem Inflammatory Syndrome in Children During the COVID-19 Pandemic: A Case Series | Journal of the Pediatric Infectious Diseases Society | Case Series | We present a series of six critically ill children (range 5-14 years) with Multisystem Inflammatory Syndrome in Children (MIS-C). Key findings of this syndrome include fever, diarrhea, shock, and variable presence of rash, conjunctivitis, extremity edema, and mucous membrane changes. The current case series supports this syndrome as a clinical entity potentially driven by a disordered immunological response following SARS-CoV-2 infection. Evidence of prior infection includes positive antibody testing for SARS-CoV-2 IgG antibodies in all but one patient (who was not tested) and weakly positive SARS-CoV-2 nasopharyngeal PCRs in three patients. Two potentially notable findings from this study include the presence of neurologic symptoms in four patients and hyponatremia in all six patients at presentation, which may be associated with Kawasaki shock syndrome. IV immunoglobulins and methylprednisone, which are used successfully to treat Kawasaki disease, were administered to all patients in this cohort and were effective in reducing systemic inflammation. | A small case series of multisystem inflammatory syndrome in children from Philadelphia (USA) reveals several notable clinical features, including neurologic symptoms and hyponatremia. | Chiotos K, Bassiri H, Behrens EM, et al. Multisystem Inflammatory Syndrome in Children during the COVID-19 pandemic: a case series [published online 2020 May 28]. J Pediatric Infect Dis Soc. doi:10.1093/jpids/piaa069 |

<p>| Children, buccal swab, saliva samples, viral load, Singapore | 28-May-20 | Clinical Utility of Buccal Swabs for Sars-Cov-2 Detection in Covid-19-Infected Children | Journal of the Pediatric Infectious Diseases Society | Brief Report | Recent studies have shown evidence of consistent detection of SARS-CoV-2 in saliva specimens of infected adults, raising the possibility of using saliva as a less invasive form of screening for SARS-CoV-2 that is not aerosol-generating. Although children are often unable to produce saliva specimens spontaneously, buccal swabs can be performed to obtain saliva for testing. In addition, if the virus could be detected in saliva, this suggests a potential route of viral transmission in infants who tend to drool and place objects in their mouths. In the present study, eleven children (6 asymptomatic, 5 symptomatic) were included; the median ages were 8.4 years (range 2.1–12.5 years) and 3.8 years (0.3–11.8 years) respectively. SARS-CoV-2 RNA was detected from at least 1 buccal specimen in 9 out of 11 COVID-19-infected children (81.8%). The viral loads in buccal specimens were substantially lower than those in nasopharyngeal specimens. Findings led the authors to conclude that buccal swabs for SARS-CoV-2 are not suitable as screening specimens for COVID-19 in children. | Results from this comparison of buccal and nasopharyngeal specimens in COVID-19 infected children conclude that buccal specimen collection appears to have reduced sensitivity. | KAM KQ, Yung CF, Maiwald M, et al. Clinical Utility of Buccal Swabs for Sars-Cov-2 Detection in Covid-19-Infected Children [published online 2020 May 28]. J Pediatric Infect Dis Soc. doi:10.1093/jpids/piaa068 |</p>
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<tr>
<td>Children, viral shedding, reactivation, hospital discharge, China</td>
<td>28-May-20</td>
<td>Characteristics of Children With Reactivation of SARS-CoV-2 Infection After Hospital Discharge</td>
<td>Clinical Pediatrics</td>
<td>Brief Report</td>
<td>In this retrospective cohort study, 14 children (&lt;15 years) who had been hospitalized with confirmed COVID-19 in Beijing Ditan Hospital and who were discharged between January 21 and April 18, 2020 were followed and included in analysis. Of these, 7 (50%) experienced reactivation of SARS-CoV-2 shedding, including 2 children who experienced a second reactivation after discharge. Of the children with reactivation, 2 were infants (&lt;3 years), 3 were male, and the median age was 5.7 (range 2.9-7.3) years, which indicated that they were older than the children who did not experience reactivation (median 2.2 years, range 0.8-6.5 years). None of the patients were symptomatic at the time of discharge, and treatment methods did not differ significantly between those with reactivation and those without. The median time from discharge to the first recurrence of a positive SARS-CoV-2 test result was 14 (range 7-17) days.</td>
<td>Half of the children in this study had a positive SARS-CoV-2 test result on nasopharyngeal swab samples after hospital discharge.</td>
<td>Zhao W, Wang Y, Tang Y, et al. Characteristics of Children With Reactivation of SARS-CoV-2 Infection After Hospital Discharge [published online 2020 May 28]. Cedit (Phila). doi:10.1177/0009922820928057</td>
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<td>Child, inflammatory syndrome, Kawasaki disease, multi-organ dysfunction, India</td>
<td>28-May-20</td>
<td>Multisystem Inflammatory Syndrome With Features of Atypical Kawasaki Disease During COVID-19 Pandemic</td>
<td>The Indian Journal of Pediatrics</td>
<td>Clinical Brief</td>
<td>The authors report a 5-year-old boy from a COVID-19 hotspot area in India who presented in late April 2020 with acute febrile illness with abdominal pain and loose stools followed by shock. On examination, child had bulbar conjunctivitis and extremity edema. Initial investigations showed high inflammatory parameters, elevated serum creatinine and liver enzymes. Echocardiography showed moderate ventricular dysfunction and normal coronaries. Cardiac enzymes were also elevated, suggesting myocarditis. He was treated with inotropic support, respiratory support with high flow nasal cannula, IV immunoglobulins, aspirin, steroids and diuretics. RT-PCR for SARS-CoV-2 was negative twice. His clinical condition improved rapidly, and he was discharged after 6 hospital days.</td>
<td>The present case shows similar laboratory parameters and clinical profile to growing reports of COVID-19 related multi-system inflammatory syndrome in children.</td>
<td>Rauf A, Vijayan A, John ST, Krishnan R, Latheef A. Multisystem Inflammatory Syndrome With Features of Atypical Kawasaki Disease during COVID-19 Pandemic [published online 2020 May 28]. Indian J Pediatr. doi:10.1007/s12098-020-03357-1</td>
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<td>Children, diagnostic tests, clinical presentation, chest CT</td>
<td>28-May-20</td>
<td>Diagnosis of COVID-19 in Children: The Story Evolves</td>
<td>BMC Medicine</td>
<td>Commentary</td>
<td>Although children are less likely to be diagnosed with SARS-CoV-2 than adults, significant concerns remain about the small number of children reported as requiring ventilatory support and who have died as a result of COVID-19. In the published literature, there do not appear to be specific comorbidities which increase the risk of requiring hospitalization for SARS-CoV-2 infection in children. In addition, although difficult to draw conclusions from reports with a variety of phenotypes represented in children, markers such as CRP, procalcitonin, liver enzymes, and D-dimer appear to be elevated in children. Chest CT imaging has also been shown to have better diagnostic value than RT-PCR in a small handful of studies. Data on severe COVID-19 in children, including the need for ICU admission and the mortality rate, are limited.</td>
<td>Clinical features and markers, diagnostic testing, and data on severe disease in children with COVID-19 are discussed in this review.</td>
<td>Harwood R, Sinha I. Diagnosis of COVID-19 in children: the story evolves. BMC Med. 2020;18(1):158. doi:10.1186/s12916-020-01631-9</td>
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<td>Children, serology, viral testing, Seattle, USA</td>
<td>28-May-20</td>
<td>Seroprevalence of SARS-CoV-2 among children visiting a hospital during the initial Seattle outbreak</td>
<td>medRxiv</td>
<td>Preprint (not peer reviewed)</td>
<td>Children are underrepresented in COVID-19 case counts. In the United States, children represent 22% of the population but only 1.7% of confirmed SARS-CoV-2 cases. One possibility is that symptom-based viral testing is less likely to identify infected children, since they often experience milder disease than adults. To better assess the frequency of pediatric SARS-CoV-2 infection, we serologically screened 1,775 residual samples from Seattle Children’s Hospital collected from 1,076 children seeking medical care during March and April of 2020. Only one child was seropositive in March, but nine were seropositive in April for a period seroprevalence of &gt;1%. Most seropositive children (6/10) were not suspected of having had COVID-19. The sera of most seropositive children had neutralizing activity, including one that neutralized at a dilution ≥1:18,000. Therefore, among children seeking medical care, the frequency of SARS-CoV-2 infection increased markedly during the early Seattle outbreak despite few positive viral tests.</td>
<td>Serology testing may capture cases of infection in children, with milder disease, that are not identified through symptom-based viral testing.</td>
<td>Dingens AS, Crawford KHD, Adler A, et al. Seroprevalence of SARS-CoV-2 among children visiting a hospital during the initial Seattle outbreak [published online 2020 May 28]. medRxiv. doi:10.1101/2020.05.26.2011424</td>
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<td>Maternal breastfeeding, neonate, pregnancy</td>
<td>27-May-20</td>
<td>Coronavirus Covid-19 infection and breastfeeding: an exploratory review</td>
<td>Revista Española de Salud Pública</td>
<td>Review</td>
<td>The review aims to investigate the action plan on breastfeeding in postpartum women with SARS-CoV-2 and her newborn. A literature search was conducted through the Medline, Web of Science, Scopus, BVS, and Cuiden databases. A total of 14 documents have been found, of which 9 are observational empirical studies. Most of the studies were conducted in China, Italy, the USA, and Australia. A total of 114 mothers infected with SARS-CoV-2 with their respective newborns have been assessed. The results suggest that newborns should be breastfed and detecting the presence of antibodies of the coronavirus in them is a protective factor against infection. Breastfeeding in postpartum women with SARS-CoV-2 is highly recommended for the newborn if the health of the mother and newborn allows it. When direct breastfeeding is favored, the appropriate respiratory hygiene measures should be considered.</td>
<td>This review argues that the newborns should be breastfed if the maternal and child health status allows it and appropriate hygiene measures should be considered.</td>
<td>Fernández-Carrasco FJ, Vázquez-Lara JM, González-Mey U, Gómez-Salgado J, Parrón-Carreño T, Rodríguez-Díaz L. Infección por coronavirus Covid-19 y lactancia materna: una revisión exploratoria [Coronavirus Covid-19 infection and breastfeeding: an exploratory review]. Rev Esp Salud Publica. 2020;94:e202005055. Published 2020 May 27.</td>
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<td>Vertical transmission, pregnancy, maternal outcomes, placenta, pathology, United Kingdom</td>
<td>27-May-20</td>
<td>Adverse outcomes in SARS-CoV-2 (COVID-19) and SARS virus related pregnancies with probable vertical transmission</td>
<td>JBRA Assisted Reproduction</td>
<td>Review</td>
<td>This article summarizes some of the current data on COVID-19 in pregnancy, including evidence for and against possible vertical transmission of the virus, findings from placental pathology, and the impact of the virus and potential vertical transmission on other birth outcomes. There are several reports suggestive of vertical or in-utero transmission of the SARS-CoV-2 virus but with insufficient information to establish with certainty how the virus was transmitted. Other studies have shown no evidence of vertical transmission, yet also have their limitations. At this time, there is a lack of definitive data for whether or not vertical transmission occurs. Pathologic changes in the maternal placenta have also been described, including decidual arteriopathy and maternal vascular malperfusion. One study found SARS-CoV-2 mainly in the syncytiotrophoblast cells at the maternal-fetal interface of the placenta in a second trimester of pregnancy. The authors summarize several reports of adverse outcomes, such as preterm births, that occurred in cases with possible vertical transmission. More evidence is needed to understand how COVID-19 impacts pregnancy and whether or not vertical transmission occurs.</td>
<td>There is conflicting evidence regarding vertical transmission of SARS-CoV-2 and the role of placental and endometrial tissue. Vertical transmission could impact pregnancy and pregnancy-related outcomes, such as preterm birth. Further evidence is needed to draw more concrete conclusions that will help guide clinical care.</td>
<td>Gulam Bahadur, Roy Homburg, Wai Yoong, et al. Adverse outcomes in SARS-CoV-2 (COVID-19) and SARS virus related pregnancies with probable vertical transmission. JBRA Assist. Reprod. 2020; 24 (3):351-357</td>
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<td>Pregnancy, universal obstetric screening, PPE</td>
<td>27-May-20</td>
<td>Letter to the Editor: Screening All Pregnant Women Admitted To Labor And Delivery For The Virus Responsible For COVID-19</td>
<td>American Journal of Obstetrics and Gynecology</td>
<td>Letter to the Editor</td>
<td>The authors disagree with the recent call by Vintzileos et al. for universal obstetric COVID-19 screening and argue in favor of continued adherence to public health guidelines for COVID-19 diagnostic testing. They state that a positive COVID-19 test provides no information regarding current or future ability to transmit the virus. Therefore, they recommend continued use of universal personal protective equipment with testing limited to diagnosis in disease management.</td>
<td>In this article, the authors present an argument against universal obstetric screening for COVID-19.</td>
<td>Henderson CE, Jackman JM, Rezai S. Letter to the Editor: Screening All Pregnant Women Admitted To Labor And Delivery For The Virus Responsible For COVID-19 [published online 2020 May 27]. Am J Obstet Gynecol. doi:10.1016/j.ajog.2020.05.041</td>
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<td>Pregnancy, universal obstetric screening, pre-symptomatic or asymptomatic patients, PPE</td>
<td>27-May-20</td>
<td>Reply To: Letter to the Editor: Screening All Pregnant Women Admitted to Labor and Delivery for the Virus Responsible for COVID-19</td>
<td>American Journal of Obstetrics and Gynecology</td>
<td>Letter to the Editor</td>
<td>In reply to the correspondence by Henderson et al., the authors claim that testing capacity using RT-PCR has increased, and epidemiological evidence has emerged for widespread viral transmission by both pre-symptomatic and asymptomatic COVID-19 positive patients. These data support the logic of universal testing for SARS-CoV-2 among obstetric patients admitted to the hospital; such testing would ensure the correct cohorting of patients, correct use of protective personal equipment, and correct utilization of inpatient resources if the need arises.</td>
<td>In reply to the letter by Henderson et al., the authors emphasize that universal obstetric screening is aimed at identifying pre-symptomatic or asymptomatic patients.</td>
<td>Vintzileos WS, Muscat J, Hoffmann E, et al. Reply to: Letter to the Editor: Screening All Pregnant Women Admitted to Labor and Delivery for the Virus Responsible for COVID-19 [published online 2020 May 27]. Am J Obstet Gynecol. doi:10.1016/j.ajog.2020.05.041</td>
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<td>Children, Kawasaki Disease, history, vasculitis</td>
<td>27-May-20</td>
<td>Covid-19 and Kawasaki Disease: A Glimpse at the Past for a Predictable Future</td>
<td>Pediatric Cardiology</td>
<td>Letter to the Editor</td>
<td>A major warning is spreading all over the world about the increasing occurrence of Kawasaki Disease (KD) among children living in high-risk areas, potentially linked with SARS-CoV-2 infection. There is some evidence that the “Covid-19-associated” disease may present as an atypical form of KD. In this view, the authors propose that the term “COVID-19-associated vasculitis” is a more appropriate term for this disease, rather than “Covid-19-associated KD”. These two similar but distinct entities may even coexist since the “true” KD has the highest incidence in March–April.</td>
<td>The authors refer to the history of Kawasaki Disease discovery to reflect on the recent emergence of what they term &quot;COVID-19 associated vasculitis&quot; in children.</td>
<td>Calabri GB, Formigari R. Covid-19 and Kawasaki Disease: A Glimpse at the Past for a Predictable Future [published online 2020 May 27]. Pediatr Cardiol. doi:10.1007/s00246-020-02385-0</td>
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<td>Pediatrics, compassionate palliative care, moral distress, ethical issues</td>
<td>27-May-20</td>
<td>Pediatric Palliative Care in a Pandemic: Role Obligations, Moral Distress, and the Care You Can Give</td>
<td>Pediatrics</td>
<td>Ethics Rounds</td>
<td>Many ethical issues arise concerning the care of critically ill and dying patients during the COVID-19 pandemic. This issue presents two cases that highlight two different types of ethical issues. One is focused on the decisions that have to be made when the surge of patients with respiratory failure overwhelms ICUs. The other is focused on the psychological issues that arise for parents who are caring for a dying child when infection-control policies limit the number of visitors. Both of these situations raise challenges for caregivers who are trying to be honest, to deal with their own moral distress, and to provide compassionate palliative care.</td>
<td>Two cases are presented that highlight ethical issues surrounding the provision of compassionate palliative care to children with COVID-19.</td>
<td>Evans AM, Jonas M, Lantos J. Pediatric Palliative Care in a Pandemic: Role Obligations, Moral Distress, and the Care You Can Give [published online 2020 May 27]. Pediatrics. doi:10.1542/peds.2020-1163</td>
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<td>Children, laboratory abnormalities, leukocyte indices, inflammatory markers, cardiac injury,</td>
<td>27-May-20</td>
<td>Laboratory Abnormalities in Children with Mild and Severe Coronavirus Disease 2019 (COVID-19): a pooled analysis and review</td>
<td>Clinical Biochemistry</td>
<td>Original Article</td>
<td>A literature search on laboratory findings in children with mild and severe COVID-19 identified 24 studies, including a total of 624 pediatric cases with laboratory-confirmed COVID-19, which report data on 27 different biomarkers. A meta-analysis was performed to calculate the pooled prevalence estimates (PPE) for these laboratory abnormalities in mild COVID-19. In mild disease, creatine kinase-MB (CK-MB) was frequently elevated, with a PPE of 33%. In severe disease, C-reactive protein (CRP), procollagen (PCT), and lactate dehydrogenase (LDH) were frequently elevated. Data also showed an inconsistent pattern of change in the</td>
<td>Pooled findings from studies on laboratory markers in children with COVID-19 suggest that CRP, PCT, LDH, and CK-MB should be used to monitor illness, while leukocyte indices show inconsistent patterns.</td>
<td>Henry BM, Benoit SW, Santos de Oliveira MH, et al. Laboratory Abnormalities in Children with Mild and Severe Coronavirus Disease 2019 (COVID-19): a pooled analysis and review [published online 2020 May 27]. Clin Biochem.</td>
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<td>systematic review</td>
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<td>leukocyte index of mild and severe cases of COVID-19 in children, differing from reports in adults that highlight specific leukocyte trends. Specifically, changes in leukocyte counts were only observed in 32% of the mild pediatric cases (PPE: 13% increase, 19% decrease). This brings into question the utility and reliability of such parameters in monitoring disease severity in the pediatric population. Instead, the authors suggest that physicians serially monitor CRP, PCT, and LDH to track the course of illness in hospitalized children, as well as cardiac biomarkers to assess possible cardiac injury.</td>
<td>doi:10.1016/j.clinbiochem.2020.05.012</td>
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<td>Children, child health, poverty, social services, food insecurity, policy action</td>
<td>27-May-20</td>
<td>Children Are Being Sideline by covid-19</td>
<td>The BMJ</td>
<td>Editorial</td>
<td>Emerging data show the COVID-19 pandemic tracking along social fault lines; although children are not the face of this pandemic, they are deeply affected. In the shorter term, with the focus squarely on adults with COVID-19, child health and social care services are being sidelined. Within family homes, the unintended consequences of the lockdown will affect poor children the most. In addition, many children are going hungry as foodbanks scramble to reconfigure services to meet the rising tide of food insecurity. In the longer term, an economic recession due to the pandemic will push further children into poverty with significant effects on child health. Proactive and concerted policy focus on vulnerable children is necessary to ensure that they are not overlooked.</td>
<td>This editorial summarizes negative short- and long-term impacts of the pandemic that are expected to affect vulnerable children. Sinha I, Bennett D, Taylor-Robinson DC. Children are being sidelined by covid-19. BMJ. 2020;369:m2061. doi:10.1136/bmj.m2061</td>
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<td>Perinatal mental health, NICU staff, post-traumatic stress</td>
<td>27-May-20</td>
<td>Covid-19 and the Need for Perinatal Mental Health Professionals: Now More Than Ever Before</td>
<td>Journal of Perinatology</td>
<td>Comment</td>
<td>In ordinary times, the experience of a NICU hospitalization is a potentially traumatic event for the newborn’s parents. A published estimate of the prevalence of diagnosable mental disorders in NICU parents in the first parturum year is 20–30%. To the author’s knowledge, the highest report of parental post-traumatic stress symptoms in the literature (60% of mothers and 47% of fathers exceeding threshold) comes from a NICU that had strict limitations on skin-to-skin care and breastfeeding (not allowed) and visitation curtailment to one parent at a time. The current pandemic’s limitations on parental engagement with newborns in the NICU, as well as exclusion of partners from labor and delivery will have serious effects on the wellbeing of families. Currently, most NICU social workers and psychologists are considered non-essential. Strategies to add mental health staff in the perinatal setting must be incorporated into discussions to promote the psychological health of parents, newborns, and NICU workers.</td>
<td>This article discusses the need to incorporate more perinatal mental health staff into NICUs, to support parents, newborns, and staff experiencing added stress during this pandemic. Hynan MT. Covid-19 and the need for perinatal mental health professionals: now more than ever before [published online 2020 May 27]. J Perinatol. doi:10.1038/s41372-020-0696-z</td>
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<td>Children, Kawasaki disease, France</td>
<td>27-May-20</td>
<td>Kawasaki Disease Linked to COVID-19 in Children</td>
<td>Nature Reviews Immunology</td>
<td>In Brief</td>
<td>An unusually high incidence of Kawasaki disease in children was reported in a French center for emerging infectious diseases: 17 cases in 11 days, in contrast to an average of 2 cases per month in 2018–2019. In 82% of the cases, IgG antibodies for SARS-CoV-2 were detected, suggesting an association between the virus and this syndrome in children. Although only six patients had recent history of an acute respiratory infection, all patients had gastrointestinal symptoms before the onset of Kawasaki disease symptoms. Remarkably, almost 60% of the patients originated from sub-Saharan Africa or Caribbean islands, and 12% from Asia, raising a possible genetic predisposition. Although Kawasaki disease–like syndromes have previously been linked to other viral infections, these patients showed higher levels of pro-inflammatory markers than other cohorts, which may reflect a particularly strong immunological reaction to SARS-CoV-2.</td>
<td>A brief summary of recent data on Kawasaki disease in children from France is provided. Moreira A. Kawasaki disease linked to COVID-19 in children [published online 2020 May 27]. Nat Rev Immunol. doi:10.1038/s41577-020-0350-1</td>
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<td>Pediatric inclusion, clinical therapeutic trials, bioethics</td>
<td>27-May-20</td>
<td>Importance of Pediatric Inclusion in COVID-19 Therapeutic Trials</td>
<td>Clinical Infectious Diseases</td>
<td>Viewpoints</td>
<td>As of May 6, 2020, options to participate in antiviral clinical trials targeting SARS-CoV-2, aside from convalescent plasma trials, are limited to adolescents ages 12 or older with the exception of a hydroxychloroquine treatment study at the authors’ institution, open to children of all ages. Children have inherent biological differences that evolve with age and can manifest as alterations in immunity, disease pathophysiology, pharmacokinetics, and therapeutic effects. As a basic principle of justice, children significantly affected by COVID-19 should be given equal opportunities to receive potentially active therapeutic agents against COVID-19 in the safest manner possible, through structured clinical trials. Delays in initiation of pediatric clinical trials while awaiting adult data pose a potentially preventable safety issue for children.</td>
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<td>Children in Critical Care Due to Severe Acute Respiratory Syndrome Coronavirus 2 Infection; Experience in a Spanish Hospital</td>
<td>Pediatric Critical Care Medicine</td>
<td>Online Brief Report</td>
<td>At a tertiary hospital in Madrid, Spain between March 1 and April 15, 2020, 11 children were admitted to the pediatric ICU (PICU) with suspected COVID-19; PCR testing was positive in seven. Median age of the seven patients was 100.7 months (range 0.5–162 months). Five were admitted from the emergency department and two from the ward. The Pediatric Sequential Organ Failure Assessment score was 3 (range 0–9), and Pediatric Risk of Mortality II score was 4 (range 0–16). All children were previously healthy except one (who received an allogeneic hematopoietic stem cell transplantation). Respiratory symptoms and fever were prevalent. Not all patients presented with lymphopenia on admission. D-Dimer and ferritin were elevated. All patients needed oxygen therapy through a nasal cannula; five patients received high-flow nasal cannula therapy, which was later substituted with noninvasive ventilation in four. Mechanical ventilation was necessary in two patients on the first day of PICU admission. Tocilizumab was administered in two intubated children. Also, four children received heparin. No patients died.</td>
<td>The authors report their own experiences and outline a rationale for the inclusion of children in COVID-19 therapeutic trials.</td>
<td>Raabe VN, Lighter J, Caplan AL, Ratner AJ. Importance of Pediatric Inclusion in COVID-19 Therapeutic Trials [published online 2020 May 27]. Clin Infect Dis. doi:10.1093/cid/ciaa656</td>
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<td>Children, critical care, PICU, oxygen therapy, mechanical ventilation, Spain</td>
<td>27-May-20</td>
<td>Symptoms and Critical Illness Among Obstetric Patients With Coronavirus Disease 2019 (COVID-19) Infection</td>
<td>Obstetrics &amp; Gynecology</td>
<td>Original Research</td>
<td>Pregnant women with COVID-19 were identified at two affiliated hospitals in New York City from March 13 to April 19, 2020, for this case series study. Of 158 pregnant women with SARS-CoV-2 infection, 124 (78%) had mild or asymptomatic disease and 34 (22%) had moderate or severe disease. Of 15 hospitalized women with moderate or severe disease, 10 received respiratory support with supplemental oxygen and one required intubation. Women with moderate or severe disease had a higher likelihood of having an underlying medical comorbidity (50% vs 27%, OR 2.76, 95% CI 1.26–6.02). Asthma was more common among those with moderate or severe disease (24% vs 8%, OR 3.51, 95% CI 1.26–9.75). Women with moderate or severe disease were significantly more likely to have leukopenia and elevated aspartate transaminase and ferritin. Women with moderate or severe disease were at significantly higher risk for cough and chest pain and pressure. Nine women received ICU or step-down-level care, including four for 9 days or longer. Two women underwent preterm delivery because their clinical status deteriorated.</td>
<td>In this small prospective cohort of children with COVID-19 in Spain, respiratory symptoms were the leading cause of PICU admission, making respiratory support the principal therapy.</td>
<td>Garcia-Salido A, Leoz-Gordillo I, Martínez de Azagra-Garde A, et al. Children in Critical Care Due to Severe Acute Respiratory Syndrome Coronavirus 2 Infection: Experience in a Spanish Hospital [published online 2020 May 27]. Pediatr Crit Care Med. doi:10.1097/PCC.000000000002475</td>
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**COVID-19, Maternal and Child Health, Nutrition – Literature Repository**  
**May 2020**
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<th>Key Terms</th>
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<tr>
<td>Ectopic pregnancy, medical therapy, immuno-suppression, laparoscopy, viral transmission</td>
<td>27-May-20</td>
<td>Ectopic Pregnancy During Coronavirus Disease 2019 (COVID-19): To Operate, or Not to Operate</td>
<td>Obstetrics &amp; Gynecology</td>
<td>Clinical Conundrums</td>
<td>In a stable, unruptured ectopic pregnancy with significant exposure or asymptomatic COVID-19 infection, should the patient be treated surgically, given limited personal protective equipment and potential exposure of surgical team members, or administered medical therapy (i.e. methotrexate) with potential risk of immunodeficiency which increases risk for worsening infection? The benefits and risks of medical and surgical therapies must be balanced when considering a woman's history, physical exam, laboratory and radiological findings. The authors also provide suggestions to reduce the theoretical risk of viral transmission during laparoscopy, a minimally invasive surgical approach that can reduce hospital stay and lead to quicker recovery.</td>
<td>Risks and benefits of surgical and medical therapies for ectopic pregnancy are discussed in the context of COVID-19 concerns.</td>
<td>Hansen KA, Stovall DW. Ectopic Pregnancy During Coronavirus Disease 2019 (COVID-19): To Operate, or Not to Operate [published online 2020 May 27]. Obstet Gynecol. doi:10.1097/AOG.0000000000003995</td>
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<tr>
<td>Human milk, viral load, thermal pasteurization, coronaviruses</td>
<td>27-May-20</td>
<td>The impact of thermal pasteurization on viral load in human milk and other matrices: A rapid review</td>
<td>medRxiv</td>
<td>Preprint (not peer reviewed)</td>
<td>Thermal pasteurization (62.5°C, 30 min) of human milk (HM) is thought to reduce the risk of transmitting viruses to an infant. Some viruses may be secreted into milk; others may be contaminants. Primary research articles until April 20, 2020 were identified to assess the impact of pasteurization on viral load or detection of live virus. Reviews were excluded, as were studies lacking quantitative measurements or those assessing pasteurization as a component of a larger process. Overall, 65,131 reports were identified, and 108 included. Pasteurization of HM at a minimum temperature of 56°C-60°C is effective at reducing detectable live virus. In cell culture media or plasma, coronaviruses, like SARS-CoV, SARS-CoV-2, MERS are highly susceptible to heating at ≤60°C. Future research should standardize pasteurization protocols and test viral inactivation using a human milk matrix.</td>
<td>This review describes the effect of thermal pasteurization on reducing detectable live viruses, like coronaviruses, in human milk.</td>
<td>Pitino MA, O'Connor DL, McGeer AJ, Unger S. The impact of thermal pasteurization on viral load in human milk and other matrices: A rapid review [published online 2020 May 27]. medRxiv. doi:10.1101/2020.05.23.2011369</td>
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<tr>
<td>Children, appendicitis, pediatric medical emergency, delayed diagnosis, Israel</td>
<td>27-May-20</td>
<td>Delayed Diagnosis of Pediatric Appendicitis During the COVID-19 Pandemic</td>
<td>Acta Paediatrica</td>
<td>Regular Article</td>
<td>In cases collected from three pediatric surgical wards in Israel, seven children presented with complicated appendicitis. Main reasons for their delayed diagnosis during the COVID-19 era were parental concern, telemedicine use and insufficient evaluation. Higher complication rates were found during the COVID-19 era compared to a similar period in the previous year (22% vs. 11%, p=0.06). Fear from COVID-19 pandemic may result in delayed diagnosis and higher complication rates in routine pediatric medical emergencies.</td>
<td>This report presents seven pediatric patients with appendicitis, all with late diagnosis resulting from different aspects related to fear from the current global COVID-19 pandemic.</td>
<td>Snapiro O, Rosenberg Danziger C, Krause I, et al. Delayed Diagnosis of Pediatric Appendicitis during the COVID-19 Pandemic [published online 2020 May 27]. Acta Paediatr. doi:10.1111/apa.15376</td>
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<tr>
<td>Pregnancy, children, nutrition, food security,</td>
<td>26-May-20</td>
<td>COVID-19 and maternal and child food and nutrition insecurity: a complex syndemic</td>
<td>Maternal and Child Nutrition</td>
<td>Editorial</td>
<td>The authors express concern that families with young children, youth, pregnant and lactating women need to be protected against the ongoing protracted COVID-19 pandemic and its exacerbating effects on poverty and unemployment, food and nutrition insecurity, and poor health outcomes. They articulate that the wellbeing of these vulnerable groups will depend on re-configuring currently ineffective food, nutrition, health, and social protection systems. Because food, nutrition, health, and socio-economic outcomes are inter-connected, better inter-sectoral coordination among global and local food, health care, and social protection systems is essential, taking equity and sustainability principles into account. Implementation science research informed by complex adaptive systems frameworks will be needed to fill in the major knowledge gaps.</td>
<td>The authors argue that coordination will be needed across food, health care, and social protection systems to mitigate the harmful effects of the COVID-19 pandemic on vulnerable populations.</td>
<td>Pérez-Escamilla R, Cunningham K, Moran VH. COVID-19 and maternal and child food and nutrition insecurity: a complex syndemic [published online 2020 May 26]. Matern Child Nutr. 2020;16(3):e13036. doi:10.1111/mcn.13036</td>
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<td>May 2020</td>
<td>Obstetric Management of COVID-19 in Pregnant Women</td>
<td>Frontiers in Microbiology</td>
<td>Review</td>
<td>This review was conducted to investigate the clinical course and outcome of COVID-19 in pregnancy and to discuss several drugs that could be used for pregnant women with COVID-19. According to this literature review, most pregnant women infected by the three coronaviruses had an epidemiological contact history. Fever, cough, myalgia, and dyspnea are the major symptoms. CT images revealed typical signs of viral infection in the lungs. Nasopharynx swab or sputum samples were positive for viral nucleic acid. Lymphopenia and elevated liver enzymes were commonly seen in pregnant women with COVID-19 and SARS. Results found that interferon-alpha, lopinavir/ritonavir, and chloroquine could be administered to pregnant women with COVID-19 after patients were fully informed of these drugs' benefits and risks. Remdesivir and arbidol are promising antiviral drugs against COVID-19; however, their safety in pregnancy requires further research.</td>
<td>It seems that COVID-19 during pregnancy is milder than SARS and MERS during pregnancy. However, pregnant women with COVID-19 should be closely monitored, even after their etiological tests turn negative.</td>
<td>Mei Y, Luo D, Wei S, et al. Obstetric Management of COVID-19 in Pregnant Women. Front Microbiol. 2020;11:1186. doi:10.3389/fmicb.2020.01186</td>
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<td>May 2020</td>
<td>Severe SARS-CoV-2 Infection in Children With Suspected Acute Abdomen: A Case Series From a Tertiary Hospital in Spain</td>
<td>The Pediatric Infectious Diseases Journal</td>
<td>Instructive Cases</td>
<td>This case series describes 5 children (range 9-13 years) with severe SARS-CoV-2 infection, hemodynamic instability and suspected acute abdomen. This form of the disease has not been previously documented. Four of the cases were confirmed SARS-CoV-2 infection and 1 probable. All of them were previously healthy and required admission to the pediatric critical care unit. Respiratory symptoms were not dominant or were absent; fever was observed. Laboratory testing revealed lymphopenia and high levels of C-reactive protein and procalcitonin with D-dimer, ferritin and interleukin-6 usually elevated. Respiratory support and inotropic support were almost always necessary; mechanical ventilation was required in one case.</td>
<td>Severe presentation of SARS-CoV-2 infection, characterized by presence of abdominal pain and skin manifestations, is described in five pediatric cases.</td>
<td>Cabrero-Hernández M, García-Salido A, Leoz-Gordillo I, et al. Severe SARS-CoV-2 Infection in Children With Suspected Acute Abdomen: A Case Series From a Tertiary Hospital in Spain [published online 2020 May 26]. Pediatr Infect Dis J. doi:10.1097/INF.0000000000002777</td>
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<td>May 2020</td>
<td>Covid-19 and Kawasaki Disease: An Etiology or Coincidental Infection?</td>
<td>The Pediatric Infectious Diseases Journal</td>
<td>Letter to the Editor</td>
<td>Various studies have shown that viruses, such as adenovirus and coronavirus, have been isolated from patients with Kawasaki Disease (KD). In addition, clinical presentation of patients with viral infection could mimic KD. Some viruses may also be detected in KD as a coinfection. There is growing concern that COVID-19 might present in children as a multi-system inflammatory response similar to KD. Respiratory viruses, in particular, that replicate in the bronchial epithelium and stimulate IgA plasma cell response could explain the pathogenesis of KD. Interestingly, a vigorous host IgA response has been detected in the early stage of SARS-CoV-2 infection, which might suggest a possible link between COVID-19 and KD. Furthermore, the possibility of molecular mimicry, in which the pathogen shares similar protein structure with body tissue leading to immunological cross-reactivity cannot be excluded.</td>
<td>The documented association between respiratory viruses, including previous coronaviruses, and KD raises concern of whether SARS-CoV-2 infection increases the risk of KD in children.</td>
<td>Raba AA, Abobaker A. Covid-19 and Kawasaki Disease: An Etiology or Coincidental Infection? [published online 2020 May 26]. Pediatr Infect Dis J. doi:10.1097/INF.0000000000002779</td>
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<td>May 2020</td>
<td>Orchiepididymitis in a Boy with COVID-19</td>
<td>The Pediatric Infectious Diseases Journal</td>
<td>Brief Report</td>
<td>A 14-year-old boy presented at the Emergency Department of the Versilia Hospital (Italy) with a 2-day history of high fever, pain, and swelling in the right testis. Two weeks before, he had a brief episode of high fever with spontaneous remission. Physical examination suggested acute scrotum, and swelling was confirmed by ultrasonography leading to diagnosis of orchiepididymitis. No respiratory or urinary tract symptoms were present. Upon admission to the Pediatric Unit, a nasopharyngeal swab for SARS-CoV-2 was positive. The following clinical course was uneventful. This case points to the authors’ knowledge, this is the first case of orchiepididymitis associated with COVID-19 in a child.</td>
<td>To the authors’ knowledge, this is the first case of orchiepididymitis associated with COVID-19 in a child.</td>
<td>Gagliardi L, Bertacca C, Centenari C, et al. Orchiepididymitis in a Boy with COVID-19 [published online 2020 May 26]. Pediatr Infect Dis J. doi:10.1097/INF.0000000000002769</td>
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<td>Children, viral pneumonia, risk factors, LMICs</td>
<td>26-May-20</td>
<td>Protecting Children in Low-Income and Middle-Income Countries From COVID-19</td>
<td>BMJ Global Health</td>
<td>Editorial</td>
<td>Based on child pneumonia experience, COVID-19, a viral pneumonia syndrome, may impact children in low- and middle-income countries (LMICs) more severely than what has been observed to date in high-income countries (HICs). Risk factors for poor outcomes in pneumonia are overwhelmingly more prevalent in LMICs; these include severe malnutrition, low immunization uptake, nutritional anemia, HIV exposure or infection, air pollution, poverty, low parental education and, crucially, limited access to high-quality acute healthcare. The indirect effects of the COVID-19 response also require attention, for example widespread parental unemployment, disrupted education, food and housing insecurity and threats to vital preventive health programs, like immunization, antenatal care, infant feeding and mental health. The authors suggest that vital services and health workforce must be maintained, COVID-19 testing must be scaled up in LMICs, lockdown strategies should be tailored to specific environments, and further research on COVID-19 in children must be conducted.</td>
<td>The authors draw on their shared child pneumonia experience globally to highlight the potential impacts of COVID-19 on children in LMICs and propose actions for a collective response.</td>
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<td>Pregnancy, neonates, separation policies, breastfeeding, WHO</td>
<td>26-May-20</td>
<td>When Separation Is Not the Answer: Breastfeeding Mothers and Infants Affected by COVID-19</td>
<td>Maternal &amp; Child Nutrition</td>
<td>Original Article</td>
<td>The WHO has provided detailed guidance on the care of infants of women who are a person under investigation (PUI) or confirmed to have COVID-19, which supports immediate postpartum mother-infant contact and breastfeeding with appropriate respiratory precautions. Although many countries have followed WHO guidance, others have implemented infection prevention and control policies that impose varying levels of postpartum separation and discourage breastfeeding or provision of expressed breastmilk. These policies aim to protect infants from the potential harm of infection from their mothers, yet they may fail to fully account for the impact of separation. Global COVID-19 data are suggestive of potentially lower susceptibility and a typically milder course of disease among children, although the potential for severe disease in infancy remains. Separation causes cumulative harms, including disrupting breastfeeding and limiting its protection against infectious disease, which has disproportionate impacts on vulnerable infants. Separation also pretends the replaceability of breastfeeding—a risk that is magnified in emergencies. Moreover, separation does not ensure lower viral exposure during hospitalizations and post-discharge and contributes to the burden on overwhelmed health systems. Finally, separation magnifies maternal health consequences of insufficient breastfeeding and compounds trauma in communities who have experienced long-standing inequities and violence, including family separation. Taken together, separating PUI/confirmed SARS-CoV-2 positive mothers and their infants may lead to excess preventable illnesses and deaths among infants and women around the world.</td>
<td>This article discusses the potential detrimental effects of separation policies in settings that have not followed WHO-directed guidance promoting proximity and breastfeeding for COVID-19 affected mothers and infants.</td>
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<td>Children, pregnant and lactating women, health</td>
<td>26-May-20</td>
<td>COVID-19, Food and Nutrition Insecurity and the Wellbeing of Children</td>
<td>Maternal &amp; Child Nutrition</td>
<td>Editorial</td>
<td>Globally, the COVID-19 pandemic is expected to lead to unprecedented increases in poverty and food insecurity, as well as poor health and nutrition outcomes. Household food insecurity has been shown to negatively affect caregiver mental health and in turn early child development outcomes, as well as the risk of chronic undernutrition and infectious diseases in children. Increased poverty and food insecurity caused by COVID-19 place the wellbeing of vulnerable families with children, and nutrition insecurity and the wellbeing of children,</td>
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<td>food insecurity</td>
<td>2020 May 26</td>
<td>COVID-19 in Children and the Dynamics of Infection in Families</td>
<td>Pediatrics</td>
<td>Research Brief</td>
<td>From March 10 to April 10, 2020 all patients &lt;16 years old with SARS-CoV-2 infection were identified through the Geneva University Hospital's surveillance hospital (Switzerland). Of 4310 total SARS-CoV-2 cases, 40 were &lt;16 years old (0.9%) and 1 patient was excluded due to inability for follow-up. Of 39 included patients, 29 (74%) were previously healthy. Seven patients (18%) were hospitalized; reasons for admission were surveillance for non-hypoxic viral pneumonia (n=2), fever without source (n=2), apparent life-threatening event (n=1), sepsis-like event (n=1), and one pauci-symptomatic child whose parents both had severe COVID-19 (n=1). No patient required ICU admission or SARS-CoV-2 specific therapies. All patients, including 32 managed as outpatients, had complete resolution of symptoms by day 7 after diagnosis. Family cluster evaluation found that study children developed symptoms prior to other household contacts in only 8% (3/39) of cases. Interestingly, 85% (75/88) of adult household contacts developed symptoms at some point, compared to 43% (10/23) of pediatric household contacts (p&lt;0.001).</td>
<td>Findings from this study confirm that children are infected primarily within family clusters, with adult household contacts responsible for transmission to children in the majority of cases.</td>
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<td>children, family clusters, adult household contacts, viral transmission, Switzerland</td>
<td>2020 May 26</td>
<td>Pregnant and Lactating Women: A Complex Syndemic</td>
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<td>Families with young children, pregnant and lactating women must be protected against the ongoing protracted pandemic and predicted aftershocks. Multidirectional food, nutrition, health and social protection systems must be reconfigured to ensure food security for vulnerable populations of women and children.</td>
<td>pregnant and lactating women at risk.</td>
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<td>children, family transmission, household contacts, community settings, school closures</td>
<td>2020 May 26</td>
<td>COVID-19 Transmission and Children: The Child is Not to Blame</td>
<td>Pediatrics</td>
<td>Commentary</td>
<td>To what extent are children responsible for SARS-CoV-2 transmission? Resolving this issue is central to making informed public health decisions. Data on household contact investigations from Switzerland and China have shown that children frequently acquire COVID-19 from adults, rather than transmitting it to them. Transmission of SARS-CoV-2 by children outside household settings seems uncommon as well, although information is limited; studies from France and Australia have found that few secondary infections resulted from close contact between students and staff infected with SARS-CoV-2 at schools. These reports provide early reassurance that school-based transmission could be a manageable problem, especially for elementary school-aged children who appear to be at lowest risk for infection.</td>
<td>Existing data suggest that children are not significant drivers of COVID-19 transmission in household or community settings; the authors argue that serious consideration should be paid towards strategies that allow schools to remain open.</td>
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<td>pregnancy, neonates, maternal outcomes, cesarean delivery, breast milk, systematic review</td>
<td>2020 May 26</td>
<td>Complications and Outcomes of SARS-CoV-2 in Pregnancy: Where and What Is the Evidence?</td>
<td>Hypertension in Pregnancy</td>
<td>Review</td>
<td>A systematic search of relevant databases was performed on March 25 and a repeat search, on April 10, 2020. Reports of pregnant patients with SARS-CoV-2 infection at any time during their pregnancy were reviewed, and the outcomes of 155 pregnant women and 118 neonates were summarized. The evidence suggests a similar rate of severe COVID-19 cases in pregnant women and the general population. The frequency of cesarean deliveries is high, against guidelines recommendations, and requires clarification. Placenta, amniotic fluid, umbilical cord blood, breastmilk, gastric juice, urine, and feces were all screened for SARS-CoV-2 in different studies and were reported as negative suggesting a possible lack of vertical transmission. There are limited data on COVID-19 during pregnancy, associated with wide variations in methodology that make accurate data interpretation difficult.</td>
<td>This review adds to the growing evidence on SARS-CoV-2 infection during pregnancy and calls for improvement of the level of quality of the studies to allow evidence-based decisions regarding pregnant patients.</td>
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<td>26-May-20</td>
<td>Erythema Multiforme and Kawasaki Disease Associated With COVID-19 Infection in Children</td>
<td>Journal of European Academy of Dermatology and Venereology</td>
<td>This report describes two cases of children presenting with fever and eruptions with mucous membrane involvement associated with COVID-19. Case 1 is a 6-year-old male who was hospitalized for painful cheilitis during the week before admission, a rash of the extremities, and conjunctivitis. Respiratory function was normal. The clinical picture led to a diagnosis of erythema multiforme. A first SARS-CoV-2 PCR test was negative, but a second test was positive. The child’s condition improved, and he was discharged 2 weeks later. Case 2 is a 3-year-old male hospitalized with fever for 8 days. Clinical examination revealed exanthema, bilateral palmar edema, glossitis, cervical lymphadenopathy, and later desquamation of the extremities at a later assessment. Laboratory tests showed increased inflammatory biomarkers. A SARS-CoV-2 PCR test performed at admission was negative, but chest CT revealed ground-glass opacities, suggestive of COVID-19 pneumonia. A final diagnosis of COVID-19-associated Kawasaki disease was concluded, and the child was treated with IV gamma globulin.</td>
<td>Two children, without respiratory symptoms, presented with severe cutaneous manifestations associated with COVID-19.</td>
<td>Labé P, Ly A, Sin C, et al. Erythema multiforme and Kawasaki disease associated with COVID-19 infection in children [published online 2020 May 26]. J Eur Acad Dermatol Venereol. doi:10.1111/jdv.16666</td>
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<td>26-May-20</td>
<td>Sars-CoV-2 in the Context of Past Coronaviruses Epidemics: Consideration for Prenatal Care</td>
<td>Prenatal Diagnosis</td>
<td>This narrative review describes current knowledge about coronaviruses (SARS, MERS and SARS-CoV-2) and their risks and consequences on pregnancies. A summary of available candidate therapeutic options for pregnant women is also offered with consideration of the compatibility of described drugs with breastfeeding and their excretion into breast milk. The authors also compare guidance proposed by the Royal College of Obstetricians (RCOG), American College of Obstetricians and Gynecologists (ACOG), and the WHO to give an overview of prenatal management which should be utilized until future data appear.</td>
<td>A review of coronavirus in pregnancy, current therapeutic options for pregnant women with COVID-19 (with considerations for breastfeeding), and comparison of current guidance on perinatal management are provided.</td>
<td>Lambelet V, Vouga M, Pomar L, et al. Sars-CoV-2 in the context of past coronaviruses epidemics: Consideration for prenatal care [published online 2020 May 26]. Prenat Diagn. doi:10.1002/pd.5759</td>
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<td>26-May-20</td>
<td>Prevalence of SARS-CoV-2 Among Patients Admitted for Childbirth in Southern Connecticut</td>
<td>JAMA</td>
<td>From April 2 to April 29, 2020, screening and SARS-CoV-2 testing of patients admitted for childbirth was initiated at 3 Yale New Haven Health hospitals in southern Connecticut. Of 782 patients presenting for childbirth who were screened, 1.5% (12/782) were previously diagnosed with COVID-19. The remaining 770 patients were tested at admission, and 30/770 (3.9%) tested positive for SARS-CoV-2. Twenty-two of the 30 who tested positive for SARS-CoV-2 (73.3%) were asymptomatic. The overall prevalence of positive test results among asymptomatic patients was 2.9% (22/756). 57% (8/14) of patients with symptoms tested positive. No asymptomatic patients who tested negative developed symptoms or required further testing. No health care workers on the obstetric units were removed from work due to SARS-CoV-2 exposure or transmission from contact with a patient.</td>
<td>These findings suggest a low (&lt;3%) prevalence of positive SARS-CoV-2 test results among asymptomatic pregnant women in a pregnant population outside of the highly endemic region of New York City.</td>
<td>Campbell KH, Tornatore JM, Lawrence KE, et al. Prevalence of SARS-CoV-2 Among Patients Admitted for Childbirth in Southern Connecticut [published online 2020 May 26]. doi:10.1001/jama.2020.890 4</td>
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<td>26-May-20</td>
<td>Benefit-risk analysis of health benefits of routine childhood immunisation against the excess risk of SARS-CoV-2</td>
<td>medRxiv (not peer reviewed)</td>
<td>For everyone excess death attributable to SARS-CoV-2 infection acquired during routine vaccination clinic visits, this study estimates that there could be 143 (38-576) deaths in children prevented by sustaining routine childhood immunization in Africa. In the alternative scenario that approximates the health benefits to only the child deaths averted from measles outbreaks, the benefit-risk ratio to the households of vaccinated children is 5 (95% CI 1-21) under these highly conservative assumptions, and if the risk to only the vaccinated children is considered, the benefit-risk ratio is 2,000 (95% CI 131-839,000). This analysis suggests that the health benefits</td>
<td>This study compares the health benefits of sustaining routine childhood immunization in Africa against the risk of acquiring SARS-CoV-2 infections through visiting routine</td>
<td>Abbas KM, Proctor SR, van Zandvoort K, et al. Benefit-risk analysis of health benefits of routine childhood immunisation against the excess risk of SARS-CoV-2 infections during the Covid-19 pandemic in Africa</td>
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<td>Infections during the Covid-19 pandemic in Africa</td>
<td>25-May-20</td>
<td>Depression and anxiety among adolescents during COVID-19: A cross-sectional study</td>
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<td>Differential exposure to the COVID-19 pandemic impacts the levels of psychological distress, particularly among vulnerable populations such as adolescents. An online questionnaire comprising of Depression Self-Rating Scale for Children, Screen for Child Anxiety Related Disorders, and basic demographic characteristics was issued and gathered. This questionnaire was accessible from April 16 - 23, 2020 for adolescents in Guiyang, China, and 1036 questionnaires met the analysis criterion. The authors found that 112 (11.78%) cases with depression and 196 (18.92%) cases with anxiety were identified, and 68 (6.56%) cases presented both depression and anxiety. Logistic regression suggested that gender, age, education of parents, companion on weekdays and physical exercise were significantly associated with depression, and that gender, physical exercise and companion on weekdays were significantly associated with anxiety.</td>
<td>The authors conducted an online questionnaire in Guiyang, China and identified 11.78% cases with depression and 18.92% cases with anxiety, and 6.56% cases presented both depression and anxiety among 1036 adolescents.</td>
<td>Chen F, Zheng D, Liu J, Gong Y, Guan Z, Lou D. Depression and anxiety among adolescents during COVID-19: A cross-sectional study. Brain Behav Immun. 2020;88:36-38. doi:10.1016/j.bbi.2020.05.061</td>
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<td>Depression, anxiety, adolescents, COVID-19, China</td>
<td>25-May-20</td>
<td>Rapid Systematic Review of Neonatal COVID-19 Including a Case of Presumed Vertical Transmission</td>
<td>BMJ Pediatrics Open</td>
<td>Review</td>
<td>The systematic review has revealed eight studies where neonates have been described to have confirmed COVID-19, with low risk of bias. Of the 10 reported cases elsewhere, only three are likely to be vertically transmitted, while seven occurred in the perinatal period and are likely to have been postnatally acquired. All neonates had a mild course, recovered fully and were negative on retesting. Neonatal infection is uncommon, with only two previously reported cases likely to be of vertical transmission. The case reported here is still RT-PCR-positive on day 28 and is asymptomatic. Ongoing research is needed to ascertain the epidemiology of COVID-19 in neonates.</td>
<td>This study recommends that future research consider the possibility of vertical transmission from asymptomatic mothers.</td>
<td>Gordon M, Kagalwala T, Rezk K, Rawlingson C, et al. Rapid systematic review of neonatal COVID-19 including a case of presumed vertical transmission. BMJ Paediatr Open. 2020;4(1):e000718. doi:10.1136/bmjpo-2020-000718</td>
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<td>Neonate, premature baby, vertical transmission,</td>
<td>25-May-20</td>
<td>Maternal Choline and Respiratory Coronavirus Effects on Fetal Brain Development</td>
<td>Journal of Psychiatric Research</td>
<td>Review</td>
<td>Prenatal COVID-19 infection is anticipated by the U.S. Centers for Disease Control to affect fetal development similarly to other common respiratory coronaviruses through effects of the maternal inflammatory response on the fetus and placenta. In the present analysis, infants of mothers who had contracted a moderately severe respiratory virus infection in early gestation and had higher gestational choline serum levels (~7.5 mM) consistent with U.S. Food and Drug Administration dietary recommendations had significantly increased development of their ability to maintain attention and to bond with their parents, compared to infants whose mothers had contracted an infection but had lower choline levels (~7.5 mM). For infants of mothers with choline levels ≥7.5μM, there was no effect of viral infection on infant ability to maintain attention and to bond with their parents, compared to infants of mothers who were not infected. Higher choline levels obtained through diet or supplements may protect fetal development and support infant early behavioral development even if the mother contracts a viral infection in early gestation when the brain is first being formed.</td>
<td>Findings from this analysis show that higher prenatal choline levels, achieved with dietary supplements, may mitigate the impact of respiratory virus infection during pregnancy on fetal development and later childhood behavior.</td>
<td>Freedman R, Hunter SK, Law AJ, et al. Maternal choline and respiratory coronavirus effects on fetal brain development. [published online 2020 May 25]. J Psychiatr Res. doi:10.1016/j.jpsychires.2020.05.019</td>
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<td>Pregnancy, fetal brain development, prenatal choline levels, dietary supplements, respiratory virus infection</td>
<td>25-May-20</td>
<td>Maternal Choline and Respiratory Coronavirus Effects on Fetal Brain Development</td>
<td>Journal of Psychiatric Research</td>
<td>Review</td>
<td>Prenatal COVID-19 infection is anticipated by the U.S. Centers for Disease Control to affect fetal development similarly to other common respiratory coronaviruses through effects of the maternal inflammatory response on the fetus and placenta. In the present analysis, infants of mothers who had contracted a moderately severe respiratory virus infection in early gestation and had higher gestational choline serum levels (~7.5 mM) consistent with U.S. Food and Drug Administration dietary recommendations had significantly increased development of their ability to maintain attention and to bond with their parents, compared to infants whose mothers had contracted an infection but had lower choline levels (~7.5 mM). For infants of mothers with choline levels ≥7.5μM, there was no effect of viral infection on infant ability to maintain attention and to bond with their parents, compared to infants of mothers who were not infected. Higher choline levels obtained through diet or supplements may protect fetal development and support infant early behavioral development even if the mother contracts a viral infection in early gestation when the brain is first being formed.</td>
<td>Findings from this analysis show that higher prenatal choline levels, achieved with dietary supplements, may mitigate the impact of respiratory virus infection during pregnancy on fetal development and later childhood behavior.</td>
<td>Freedman R, Hunter SK, Law AJ, et al. Maternal choline and respiratory coronavirus effects on fetal brain development. [published online 2020 May 25]. J Psychiatr Res. doi:10.1016/j.jpsychires.2020.05.019</td>
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<td>Infant, Tetralogy of Fallot, multi-organ dysfunction, hypoxemia, New York, USA</td>
<td>25-May-20</td>
<td>Tetralogy of Fallot palliation in a COVID-19 positive neonate</td>
<td>Journal of Clinical Anesthesia</td>
<td>Correspondence</td>
<td>This report presents the case of a 15-day-old female infant who was born with Tetralogy of Fallot (TOF) and was found to be COVID-19 positive on day 7 of life. The infant’s mother was diagnosed with COVID-19 after experiencing fever and shortness of breath postpartum. The infant experienced desaturation, tachypnea, worsening cyanosis, feeding intolerance, and increasing lethargy, requiring supplemental oxygen and recurrent fluid boluses; she was intubated due to repeated apneic episodes. The decision for surgical palliation of TOF with a systemic-to-pulmonary shunt was made, with modifications to prevent aerosolization during the procedure. Although elevated IgM, cytokine levels, and lymphocyte counts in the infant may be suspicious of in utero infection, current data suggests early neonatal infection is most likely due to postnatal contact with caregivers. In the face of this sustained public health crisis, the concomitant occurrence of SARS-CoV-2 with pediatric congenital heart disease mandates guidance to ensure patient safety.</td>
<td>A case of SARS-CoV-2 infection was detected in an infant born with Tetralogy of Fallot.</td>
<td>Salik I, Mehta B. Tetralogy of Fallot palliation in a COVID-19 positive neonate [published online 2020 May 25]. J Clin Anesth. doi:10.1016/j.jclinane.2020.109914</td>
</tr>
<tr>
<td>Children, infection control practices, healthcare workers, viral transmission</td>
<td>25-May-20</td>
<td>Infection Control Practices in Children During COVID-19 Pandemic: Differences From Adults</td>
<td>American Journal of Infection Control</td>
<td>State of the Science Review</td>
<td>When considering the prevention of COVID-19 transmission to healthcare workers in a pediatric referral and tertiary care hospital, four primary themes should be taken into consideration; (1) ongoing education and importance of the organization of the healthcare facility, (2) proper clinical triage and isolation of the suspected or confirmed COVID-19 patients in the outpatient clinics and in the emergency departments, (3) necessity of the organization of the COVID-19 wards, and (4) utilization of personal protective equipment.</td>
<td>This review combines the authors’ experience and recent guidelines on infection control practices in pediatric care settings during the COVID-19 pandemic.</td>
<td>Devrim İ, Bayram N. Infection control practices in children during COVID-19 pandemic: differences from adults [published online 2020 May 25]. Am J Infect Control. doi:10.1016/j.ajic.2020.05.022</td>
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<tr>
<td>Children, Kawasaki disease, vasculitis, endothelial dysfunction, inflammation</td>
<td>25-May-20</td>
<td>COVID-19 and Kawasaki Disease in Children</td>
<td>Pharmacological Research</td>
<td>Review</td>
<td>Recent reports of clusters of children presenting with Kawasaki disease (KD)-like symptoms in the UK, USA, and Italy show overlapping blood parameters and presenting symptoms consistent with COVID-19. Some of these children patients have confirmed SARS-CoV-2 infections by RT-PCR. KD is a seasonal and rare but potentially severe inflammatory condition in children, mostly occurring in those under the age of five, characterized by vasculitis-inflammation in blood vessel walls. To date, the cause of KD, is unclear, but as-yet-unidentified infectious pathogens may be the root-cause. Most children recover completely from KD after a few weeks, but early treatment is necessary to prevent possible complications. Heightened endothelial inflammation and injury after SARS-CoV-2 infection, probably via endothelial ACE2, the systemic inflammatory response to pneumonia may potentiate the inflammatory response within coronary lesions, rendering endothelial dysfunction and therefore accelerating KD development. The association between KD and COVID-19 in children remains to be fully understood.</td>
<td>There is growing concern of SARS-CoV-2 infection related inflammatory syndromes as a possible link between coronavirus infection and Kawasaki Disease affecting young children.</td>
<td>Xu S, Chen M, Weng J. COVID-19 and Kawasaki Disease in Children [published online 2020 May 25]. Pharmacol Res. doi:10.1016/j.phrs.2020.104951</td>
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<td>Pregnancy, maternal morbidity, venous thromboembolism, prophylaxis, LMWH, Spain</td>
<td>25-May-20</td>
<td>Prevention of Thrombosis in Pregnant Women With Suspected SARS-CoV-2 Infection: Clinical</td>
<td>Ultrasound in Obstetrics &amp; Gynecology</td>
<td>Letter to the Editor</td>
<td>An emerging body of evidence suggests that COVID-19 may predispose patients to venous thromboembolism (VTE). In pregnant women, both the physiological and virus-related hypercoagulability states could pose a uniquely increased risk for thrombotic-related morbidity. Thus, risk assessment, considering pre-existing conditions and temporary risk factors like reduced mobility, is important for successful provision of appropriate prophylaxis for pregnant women. International institutions recommend antenatal and postnatal prophylactic low molecular weight heparin in SARS-CoV-2 infection: clinical management algorithm [published online 2020 May 25]. Ultrasound</td>
<td>This article outlines an algorithm for thromboprophylaxis in pregnant women with SARS-CoV-2 exposure and suspected COVID-19 to prevent complications like VTE.</td>
<td>Lou-Mercadé AC, Gavin O, Oros D, et al. Prevention of thrombosis in pregnant women with suspected SARS-CoV-2 infection: clinical management algorithm [published online 2020 May 25]. Ultrasound</td>
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<td>Depression, anxiety,</td>
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<td>Management Algorithm</td>
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<td>CoV-2 positive women; however, recommendations for suspected cases remain to be determined. A national expert committee, endorsed by the Spanish Society of Thrombosis and Haemostasis, has built an algorithm for clinical management of pregnancy-associated VTE adapted to the current SARS-CoV-2 pandemic, described here.</td>
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<td>Obstet Gynecol. doi:10.1002/uog.22096</td>
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<td>Pregnancy, screening,</td>
<td></td>
<td>Children, high-risk comorbidities, specialist center, UK</td>
<td>medRxiv</td>
<td>Preprint (not peer reviewed)</td>
<td>Between March 1 and May 15, 2020, 166 children (&lt;18 years) presented to a specialist children’s hospital with clinical features of possible COVID-19 infection. 65 patients (39.2%) tested positive for SARS-CoV-2. CoVPos patients were older (median 9 years vs 1 year respectively, p&lt;0.001). There was a significantly reduced proportion of vulnerable cases with high-risk comorbidities (47.7% vs 72.3%, p=0.002), but no difference in proportion of vulnerable patients requiring ventilation (61% vs 64.3%, p=0.84) between CoVPos and CoVNeg groups. However, a significantly lower proportion of CoVPos patients required mechanical ventilation support compared to CoVNeg patients (27.7% vs 57.4%, p&lt;0.001). Mortality was not significantly different between CoVPos and CoVNeg groups (1.5% vs 4% respectively, p=0.67) although there were no direct COVID-19 related deaths in this highly preselected pediatric population. In children presenting with pre-existing vulnerable medical conditions at a specialist center, there does not appear to be significantly increased risk of either contracting COVID-19 or severe complications.</td>
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<td>Pregnancy, universal screening,</td>
<td>25-May-20</td>
<td>Pregnancy During the COVID-19 at Childbirth: Does It Deliver?</td>
<td>Ultrasound Obstet Gynecol</td>
<td>Letter to the Editor</td>
<td>The authors reviewed the medical records of all consecutive women admitted for delivery at four obstetrical units in North-East Flanders, Belgium, since local introduction of universal screening with PCR on March 30, 2020. By May 8, 473 women delivered, of whom 470 (99.4%) were screened. Thirteen tested positive (2.8%). Eight patients (61.5%) were asymptomatic, four (30.8%) had mild upper airway symptoms, and one (7.7%) tested positive with respiratory symptoms &gt;2 weeks prior to delivery but had no residual symptoms by the time of delivery. These findings are likely representative of the broader population, as a public health institute recently estimated that 4.3% of Belgium’s population is seropositive. In this review, less than 1 in 35 women admitted for delivery at hospitals in Belgium tested positive for SARS-CoV-2; of those who tested positive, only 1 in 3 had mild symptoms.</td>
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<td>Pregnancy, maternal mental health,</td>
<td>25-May-20</td>
<td>Uptrend in Distress and Psychiatric Symptomatology in Pregnant Women During the COVID-19 Pandemic</td>
<td>Acta Obstetrica et Gynecologica Scandinavica</td>
<td>Original Research Article</td>
<td>To determine the extent to which the COVID-19 pandemic may aggravate prenatal distress and psychiatric symptomatology, which have harmful effects on fetal development, two cohorts of pregnant women were evaluated: one was recruited before the pandemic between April 2018 and March 2020 (n=496), and the other was recruited during the pandemic between April 2 and 13, 2020 (n=1258). The total 1754 pregnant women (mean age 29.3, SD 4.2) were between 4 and 41 gestational weeks (mean 24.8 weeks, SD 9.4). A multivariate analysis of covariance controlling for age, gestational age, household income, education and lifetime psychiatric disorders showed a large effect size (ES) in the difference between the two cohorts on psychiatric symptoms (Wilks’ λ=0.68, F(1,643)=108.50, p&lt;0.001, partial η²=0.32). According to post-hoc analyses of covariance, the COVID-19 women reported higher levels of depressive and anxiety symptoms (ES=0.57), dissociative symptoms (ES=0.22 and 0.25), symptoms of post-traumatic stress disorder (ES=0.19), negative affectivity (ES = 0.96) and less positive affectivity (ES=0.95) than the pre-COVID-19 cohort. Women from the COVID-19 cohort were more likely than pre-COVID-19 women to present clinically significant levels of depressive and anxiety symptoms (OR=1.94, x²(1)=10.05, p=0.002). Multiple regression analyses indicated that COVID-19 pregnant women assessed during the COVID-19 pandemic reported more distress and psychiatric symptoms than pregnant women assessed before the pandemic, mainly in the form of depression and anxiety symptoms.</td>
<td></td>
<td>Berthelot N, Lemieux R, Garon-Bissonnette J, Droën-Maziade C, Martel É, Maziade M. Uptrend in distress and psychiatric symptomatology in pregnant women during the COVID-19 pandemic [published online 2020 May 25]. Acta Obstet Gynec Scand. doi:10.1111/aogs.13925</td>
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<td>Children, chronic lung disease, pulmonary function testing, Italy</td>
<td>24-May-20</td>
<td>Italian Pediatric Respiratory Society Recommendations on Pediatric Pulmonary Function Testing During COVID-19 Pandemic</td>
<td>Italian Journal of Pediatrics</td>
<td>Letter to the Editor</td>
<td>The Italian Pediatric Respiratory Society promotes a series of new recommendations that should be followed in pulmonary function testing (PFT) laboratories during the COVID-19 pandemic. PFT could be considered at a high-risk procedure for viral transmission due to the potential for coughing and droplet formation. Therefore, PFT should be performed in children with chronic lung disease only if it is needed to guide management and it should be limited to the necessary tests, namely spirometry. When performed, strict infection control measures should be followed due to the potential risk of transmitting SARS-CoV-2.</td>
<td>The Italian Pediatric Respiratory Society advises against pulmonary function testing in children with chronic lung disease unless it is needed to guide management and comprehensive infection control can be maintained.</td>
<td>Bignamini E, Cazzato S, Cutrer R, et al. Italian pediatric respiratory society recommendations on pediatric pulmonary function testing during COVID-19 pandemic. Ital J Pediatr. 2020;46(1):68. doi:10.1186/s13052-020-00829-0</td>
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<td>Child oral health, inequity, USA healthcare</td>
<td>23-May-20</td>
<td>How COVID-19 deepens child oral health inequities</td>
<td>The Journal of the American Dental Association</td>
<td>Commentary</td>
<td>As COVID-19 reaches every part and level of the USA, widespread societal inequalities have been intensely highlighted and further exacerbated. In March 2020, the CDC (USA) recommended that all elective surgeries and non-essential medical, surgical, and dental procedures be delayed due to the onset of the COVID-19 outbreak. As a result, dental clinics across the country were temporarily closed to children. Although this was a necessary precaution, closures disproportionately harmed children in poverty and those from low-income families and racial and ethnic minority groups, who carry the greatest extent and severity of dental diseases. Families may have difficulties to maintain children’s oral health. Furthermore, the COVID-19 pandemic has led to widespread unemployment and possible loss of family dental insurance. Without dental insurance most families are unable to afford out-of-pocket expenses for dental care. Fear of affordability, especially during a pandemic, dissuades parents from taking their children to the dentist, and therefore leaves children with unmet dental needs. The author also highlights how COVID-19 has disrupted the USA education system, which many students rely on for healthy and balanced nutrition. With families buying cheaper, more convenient, and less healthy food options, children may eat foods with more sugars harmful for dental health. Additionally, policy reform is recommended to ensure lasting access to affordable health care, nutritious food, and social resources for vulnerable children.</td>
<td>The author details how the COVID-19 pandemic has exacerbated oral health disparities for children within the USA. Social policies that address these disparities may improve the health and oral health of all children.</td>
<td>Kalash DA. How COVID-19 deepens child oral health inequities. J Am Dent Assoc. 2020;151(9):643-645. doi:10.1016/j.adaj.2020.05.015</td>
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<td>Pediatric cardiology, perioperative, surgery, management, cardiac catheterization</td>
<td>23-May-20</td>
<td>Perioperative Preparations for COVID-19: The Pediatric Cardiac Team Perspective</td>
<td>Journal of Cardiothoracic and Vascular Anesthesia</td>
<td>Editorial</td>
<td>This article reviews the literature and presents current recommendations for the pediatric cardiac team preparing to take care of all children and adults during the COVID-19 pandemic. The authors discuss the protection of patients and the healthcare team during surgical procedures to minimize risk of potential exposure to SARS-CoV-2. They also discuss organization, allocation, resource monitoring, and use of PPE as well as environmental safety measures. Additionally, the authors describe considerations for anesthetic care during cardiac surgery and cardiac catheterization procedures including possible exposure risks. Finally, they describe the role of the cardiac anesthesiologist during the COVID-19 pandemic. The authors state that the pediatric cardiac anesthesiologist is in a unique position to play a significant leadership role in the current rapidly changing COVID-19 pandemic. The authors present considerations for anesthetic care of pediatric COVID-19 patients in the catheterization laboratory and cardiac operating room. They also emphasize the role of the cardiac anesthesiologist during the pandemic.</td>
<td>The authors present considerations for anesthetic care of pediatric COVID-19 patients in the catheterization laboratory and cardiac operating room. They also emphasize the role of the cardiac anesthesiologist during the pandemic.</td>
<td>Ing RJ, Barrett C, Chatterjee D, Twite M, Whitney GM. Perioperative Preparations for COVID-19: The Pediatric Cardiac Team Perspective. [published online, 2020 May 23]. J Cardiothorac Vasc Anesth. doi:10.1053/j.jvca.2020.04.032</td>
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<td>Pregnancy, maternal resuscitation, category 1 cesarean delivery</td>
<td>23-May-20</td>
<td>Management of maternal resuscitation and category 1 cesarean delivery in a COVID-19 suspect parturient</td>
<td>Journal of Clinical Anesthesia</td>
<td>Correspondence</td>
<td>A previously healthy 31-year-old nulliparous Chinese woman presented with preterm labor at 32 weeks gestation. She had new onset hypertension and developed left lower lobe pneumonia, manifesting with wet cough, dyspnea and pyrexia. Prior to availability of her first SARS-CoV-2 swab, the patient developed a witnessed generalized tonic-clonic seizure during a suspected eclamptic fit. After persistent severe fetal bradycardia was noted, a category 1 cesarean section was performed. Afterwards, the patient's SARS-CoV-2 swabs were found to be negative.</td>
<td>Clinical management and infection control guidelines to respond to medical emergency and category 1 cesarean delivery in a COVID-19 suspect parturient are warranted.</td>
<td>Oh TT, Lew E, Sng BL, et al. Management of maternal resuscitation and category 1 cesarean delivery in a Covid-19 suspect parturient [published online 2020 May 23]. J Clin Anesth. doi:10.1016/j.jclane.2020.109909</td>
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<td>Children, Kawasaki Disease, serology, post-infectious cytokine release syndrome, New York, USA</td>
<td>23-May-20</td>
<td>Features of COVID-19 Post-Infectious Cytokine Release Syndrome in Children Presenting to the Emergency Department</td>
<td>The American Journal of Emergency Medicine</td>
<td>Case Series</td>
<td>This case series describes four previously healthy children (5, 10, 12, and 13 years old) with SARS-CoV-2 infection, confirmed by serologic antibody testing but negative by nasopharyngeal RT-PCR swab. The children presenting to the Pediatric Emergency Department (PED) with prolonged fever (5 or more days) and abrupt onset of hemodynamic instability with elevated serologic inflammatory markers and cytokine levels (IL-6, IL-8 and TNF-α). Interestingly, three of these four patients presumably had asymptomatic COVID-19 infections, as they reported no recent symptoms of illness yet had positive antibody testing. It is possible that the mechanism of COVID-19 post-infectious cytokine release syndrome in children is a post-infectious phenomenon related to an antibody complex mediated reaction.</td>
<td>The authors recommend that emergency physicians maintain a high clinical suspicion for COVID-19-associated post-infectious cytokine release syndrome, with features that overlap with features of Kawasaki Disease and toxic shock syndrome in children with recent SARS-CoV-2 infection.</td>
<td>Walthuch T, Gill P, Zinnes LE, et al. Features of COVID-19 post-infectious cytokine release syndrome in children presenting to the emergency department [published online 2020 May 23]. Am J Emerg Med. doi:10.1016/j.ajem.2020.05.058</td>
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<td>Children, MIS-C, case definition, multidisciplinary team, New York</td>
<td>23-May-20</td>
<td>COVID-19 associated Multisystem Inflammatory Syndrome in Children (MIS-C) guidelines; a Western New York approach</td>
<td>Progress in Pediatric Cardiology</td>
<td>Editorial</td>
<td>This document details a hospital’s multidisciplinary approach to severe multi-system inflammatory syndrome (MIS-C) reported in individuals &lt;21 years of age, discusses knowledge on the case definition and clinical manifestations, and proposes guidelines on diagnosis and treatment. This broad approach with a multidisciplinary team takes cardiology, critical care, hematology, infectious diseases, and rheumatology into consideration. Limited available reports indicate that children with COVID-19 associated MIS-C can deteriorate quickly, so increased index of suspicion and discussion regarding higher level of care (transferring to pediatric tertiary care centers or to intensive care) are warranted early.</td>
<td>A case definition of MIS-C and multidisciplinary approach to management are presented.</td>
<td>Hennon TR, Penque MD, Abdul-Aziz R, et al. COVID-19 associated Multisystem Inflammatory Syndrome in Children (MIS-C) guidelines; a Western New York approach [published online 2020 May 23]. Prog Ped Card. doi:10.1016/j.ppedcard.2020.01.10232</td>
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<tr>
<td>Children, Kawasaki Disease, coronaviruses</td>
<td>23-May-20</td>
<td>The Novel Coronavirus (COVID-19) and the Risk of Kawasaki Disease in Children</td>
<td>Journal of the Formosan Medical Association</td>
<td>Brief Communication</td>
<td>Kawasaki disease (KD) is an acute systemic febrile disease that mostly affects children &lt;5 years of age. Cough, vomiting, sterile pyuria and diarrhea are common in KD patients. The exact etiology of KD is not fully described, but infection with respiratory viruses, including coronaviruses, has been reported as a predisposing factor. Public attention has been drawn recently to studies reporting KD in COVID-19 patients; while these rare studies cannot infer a causality link between, cases of Kawasaki-like symptoms warrant added attention to prevent delays in diagnosis and referrals.</td>
<td>Existing studies of Kawasaki-like Disease in pediatric COVID-19 cannot infer causality; further research is warranted.</td>
<td>Alizargh J. The novel coronavirus (COVID-19) and the risk of Kawasaki disease in children [published online 2020 May 23]. J Formos Med Assoc. doi:10.1016/j.jfma.2020.05.030</td>
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<td>Pregnancy, maternal</td>
<td>23-May-20</td>
<td>Delivery For Respiratory</td>
<td>American Journal of Original Research</td>
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<td>It is not known whether delivery improves or compromises the outcome of COVID-19 pregnant patients with respiratory failure. In this retrospective study, delivery did not worsen the respiratory status of the patient.</td>
<td>McLaren RA Jr, London V, Atallah F, et. al. Delivery For Respiratory</td>
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<td>respiratory distress, intensive care, delivery, New York, USA</td>
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<td>Compromise Among Pregnant Women With COVID-19</td>
<td>Obstetrics &amp; Gynecology</td>
<td>Preprint</td>
<td>observational study of 125 confirmed cases of COVID-19 in pregnant women, 12 (9.6%) had severe disease. Among the 12, three resolved spontaneously after transient respiratory support in hospital and were discharged home. Of the remaining nine who continued to need respiratory support, seven (77.8%) had iatrogenic preterm deliveries (six by cesarean delivery) for maternal respiratory distress, one had an early term delivery due to premature rupture of membranes, and one has required intensive care with high-flow nasal cannula for three weeks. Of the eight patients who delivered, seven did not require intubation, and one was intubated for emergent cesarean delivery remaining on a ventilator for 19 days. Among the seven non-intubated, four had an improvement in oxygenation within two hours postpartum; the other three were off of all respiratory support between four and seven days postpartum. This series suggests that maternal respiratory distress should not be a contraindication to delivery.</td>
<td>women with severe COVID-19 and need for increasing respiratory support. Delivery may be less beneficial when damage to the lungs are sufficient to warrant intubation.</td>
<td>Respiratory Compromise Among Pregnant Women With COVID-19 [published online 2020 May 23]. Am J Obstet Gynecol. doi:10.1016/j.ajog.2020.05.035</td>
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<td>Children, adolescents, susceptibility, transmission, contact tracing, population screening, systematic review, meta-analysis</td>
<td>23-May-20</td>
<td>Susceptibility to and transmission of COVID-19 amongst children and adolescents compared with adults: a systematic review and meta-analysis</td>
<td>medRxiv</td>
<td>Preprint (not peer reviewed)</td>
<td>This rapid systematic review of contact-tracing studies and population-screening studies aims to address the question: what is the susceptibility to and transmission of SARS-CoV-2 by children and adolescents compared with adults? 18 studies met inclusion criteria; 9 contact-tracing, 8 population-screening and 1 systematic-review. Meta-analysis of contact tracing studies showed that the pooled odds ratio of being an infected contact in children, compared with adults, was 0.44 (95%CI 0.29, 0.69) with substantial heterogeneity (63%). Findings from a systematic review of household clusters of COVID-19 found 3/31 (10%) were due to a child index case and a population-based school contact tracing study found minimal transmission by child or teacher index cases. Findings from population-screening studies were heterogeneous and not suitable for meta-analysis. Large studies from Iceland, the Netherlands and Spain and an Italian municipal study showed markedly lower SARS-CoV-2 prevalence amongst children and young people, however studies from Stockholm, England, Switzerland and Germany showed no difference in infection prevalence between adults and children.</td>
<td>There is preliminary evidence that children and young people have lower susceptibility to SARS-CoV-2, with 56% lower odds of being an infected contact. Data on the role of children in the transmission of SARS-CoV-2 at a population level remain limited.</td>
<td>Viner RM, Mytton OT, Bonell C, et al. Susceptibility to and transmission of COVID-19 amongst children and adolescents compared with adults: a systematic review and meta-analysis [published online 2020 May 24]. medRxiv. doi:10.1101/2020.05.20.08126</td>
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<td>Pregnancy, immune thrombocytopenia, hypoxia, neonate, Netherlands</td>
<td>23-May-20</td>
<td>Immune Thrombocytopenia in Pregnancy Due to COVID-19</td>
<td>American Journal of Hematology</td>
<td>Correspondence</td>
<td>In April 2020, a 41-weeks-pregnant woman was diagnosed with immune thrombocytopenia (ITP) caused by COVID-19. She presented to the obstetrician due to contractions, with a sore throat but no other flu-like symptoms. Laboratory examinations showed a platelet count of 16x10^9/L; two weeks earlier the platelet counts were 98x10^9/L. Additional tests with direct monoclonal antibody immobilization of platelet antigens showed platelet autoantibodies against glycoprotein V. Throat and nose swabs were positive for SARS-CoV-2. Treatment with IV immunoglobulin for two days was initiated, and two units of donor thrombocytes were administered; her platelet counts increased to 80x10^9/L. Epidural anesthesia was complicated by hypotension, therefore an urgent cesarean section was performed. After a healthy female newborn was delivered, the mother became hypoxic without dyspnea. Within 24 hours, the peripheral oxygen saturation increased, and she was discharged four days later. The newborn did not develop any symptoms of COVID-19.</td>
<td>In this case, COVID-19 induced immune thrombocytopenia in a pregnant patient with mild symptoms.</td>
<td>Tang MW, Nur E, Biemond BJ. Immune Thrombocytopenia during Pregnancy due to COVID-19 [published online 2020 May 23]. Am J Hematol. doi:10.1002/ajh.25877</td>
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<tr>
<td>Children, adolescents,</td>
<td>23-May-20</td>
<td>COVID-19 Confirmed Case</td>
<td>medRxiv</td>
<td>Preprint</td>
<td>Using data from the Washington State Department of Health, a longitudinal cohort (n=13,934) of COVID-19 confirmed cases was analyzed between Over an eight-week period in Washington Malmgren J, Gou B, Kaplan HG. COVID-19 Confirmed</td>
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**Observations**

- **Susceptibility to COVID-19:**
  - Children and adolescents had lower susceptibility compared to adults.
  - Studies from different countries showed variations in susceptibility.

- **Transmission:**
  - Contact tracing studies and population screening showed minimal transmission by child or teacher index cases.

- **Immune Thrombocytopenia (ITP):**
  - A case report describes a 41-weeks-pregnant woman with ITP caused by COVID-19.
  - Clinical course and outcomes are discussed.

- **Pregnancy and COVID-19:**
  - Clinical management and outcomes for pregnant women with COVID-19 are highlighted.

- **Autoimmune Conditions:**
  - Autoimmune thrombocytopenia and hypoxia in neonates are discussed in the context of COVID-19.
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<tr>
<th>Key Terms</th>
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<th>Summary &amp; Key Points</th>
<th>Specific Observations</th>
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<td>young adults, case incidence, age distribution, Washington State</td>
<td>2020-03-01</td>
<td>Incidence Age Shift to Young Persons Age 0-19 and 20-39 Years Over Time: Washington State March - April 2020</td>
<td>(not peer reviewed)</td>
<td>March 1 and April 19, 2020 for proportional change over time using chi square tests for significance. Age distribution shifted with a 10% decline in cases among ages 60 years and older and a 20% increase in ages 0-19/20-39 years (chi-square = 223.10, p &lt; .001). The number of cases over the eight-week analysis period is as follows: 0-19 years (n=515), 20-39 years (n=4078), 40-59 years (n=4788), 60-79 years (n=3221), and 80+ years (n=1332). New cases increased steadily among 0-19 and 20-39-year-old individuals. After the peak (March 22, 2020), there was no decline among the 0-19 age group and a lesser decline among the 20-39 age group than older groups. As incidence declined in older age groups, the combined percentage of cases in the 0-19 and 20-39 age groups increased from 20% to 40% of total cases. A targeted approach for awareness and safety measures is advisable to reduce incidence among the supposedly less vulnerable but more mobile young population.</td>
<td>State, the age distribution of confirmed COVID-19 cases shifted, with a 10% decline in cases among the 60 year and older group vs. 20% increase in the 0-19 and 20-39 age groups.</td>
<td>Case Incidence Age Shift to Young Persons Age 0-19 and 20-39 Years Over Time: Washington State March - April 2020 [published online 2020 May 23]. medRxiv. doi:10.1101/2020.05.21.2009389</td>
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<tr>
<td>Children, viral RNA shedding, stool samples, nasopharynx, Italy</td>
<td>2020-05-23</td>
<td>Dynamic Viral SARS-CoV-2 RNA Shedding in Children: Preliminary Data and Clinical Consideration of Italian Regional Center</td>
<td>Original Article</td>
<td>This report presents preliminary data on SARS-CoV-2-RNA clearance in a series of 22 children (median age 84 months, range 8 days-210 months) with positive nasopharyngeal (NP) swabs, followed at an inpatient setting in Italy from March 16 to April 8, 2020. Four patients were asymptomatic. At diagnosis, stool was positive for SARS-CoV-2 in 15/22 (68%) patients, urine in 1/22 (4.5%) and conjunctival swab in 2/22 (9.1%). At last follow-up on April 12, 13 patients were discharged: NP swab persisted positive in 7/13 (54%, 95%CI 25-81) and stool swab persisted positive in 6/9 (67%, 95%CI 30-93). The NP swab was negative at a median of 8 days (range 2-17 days) from the date of symptom onset, and the stool swab was negative at a median of 14 days from the date of symptom onset (range 10-15 days). Overall, the estimation of positivity at day 14 from symptom onset is 52% (95%CI 21-76) for NP swab and 31% (95%CI 5-63) for stool swab. This study found frequent fecal viral RNA shedding in pediatric patients with COVID-19, independent of gastrointestinal symptoms and with relatively slow RNA clearance.</td>
<td>De Ioris MA, Scarselli A, Ciofi Degli Atti ML, et al. Dynamic viral SARS-CoV-2 RNA shedding in children: preliminary data and clinical consideration of Italian regional center [published online 2020 May 23]. J Pediatric Infect Dis Soc. doi:10.1093/jpids/piaa065</td>
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<tr>
<td>Children, erythema multiforme, chilblain, immunohistochemistry, skin biopsy, Spain</td>
<td>2020-05-23</td>
<td>Erythema Multiforme-Like Lesions in Children and COVID-19</td>
<td>Pediatric Dermatology</td>
<td>Case Report</td>
<td>During examination of cases of chilblains in children and adolescents, four patients who also showed skin lesions similar to erythema multiforme (EM) were identified. They had no other known triggers for EM. One of them had a positive PCR for SARS-CoV-2, while the other 3 were negative. Skin biopsies from two patients showed features not typical of EM, such as deep perivascular and peri-ecrine infiltrate and absence of necrosis of keratinocytes. Immunohistochemistry for SARS-CoV/SARS-CoV-2 spike protein showed granular positivity in endothelial cells and epithelial cells of eccrine glands in both biopsies. All patients had an excellent outcome and had minimal or no systemic symptoms. The coincidence of EM, a condition commonly related to viruses, and chilblains in the setting of COVID-19, as well as the positive immunohistochemistry findings strongly suggest a link between EM-like lesions and SARS-CoV-2.</td>
<td>In addition to chilblains, lesions similar to erythema multiforme were identified in four pediatric patients (1 positive for SARS-CoV-2 on RT-PCR), with positive immunohistochemistry findings for SARS-CoV-2 on skin biopsies.</td>
<td>Torrelo A, Andina D, Santonja C, et al. Erythema multiforme-like lesions in children and COVID-19 [published online 2020 May 23]. Pediatr Dermatol. doi:10.1111/pde.14246</td>
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<tr>
<td>Child, myalgia, rhabdomyolysis, creatinine kinase, New York, USA</td>
<td>2020-05-23</td>
<td>Pediatric COVID-19-associated Rhabdomyolysis: A Case Report</td>
<td>Pediatric Nephrology</td>
<td>Rapid Communication</td>
<td>Although myalgia is commonly reported in adults with COVID-19, it has not been noted as a common symptom in children. This case report describes a 16-year-old boy who presented with fever, myalgia, mild shortness of breath with exertion, and dark-colored urine. COVID-19 PCR was positive. His initial creatinine kinase (CK) level was 427,656 U/L. Serum creatinine was normal for his age. He was treated with isotonic IV fluids containing sodium bicarbonate to maintain urine output of 100-200 mL/h and urine pH&gt;7.0. His to the authors’ knowledge, this is the first pediatric case of COVID-19-associated rhabdomyolysis.</td>
<td>Gefe AM, Palumbo N, Nathan SK, Singer PS, Castellanos-Reyes LJ, Sethna CB. Pediatric COVID-19-associated rhabdomyolysis: a case report [published online 2020 May 23].</td>
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<td>Breast milk, newborn, pregnancy</td>
<td>22-May-20</td>
<td>SARS-CoV-2 Infection and the Newborn</td>
<td>Frontiers in Pediatrics</td>
<td>Review</td>
<td>This review focused on the scarce information about COVID-19’s clinical features, laboratory findings and prognosis in children and newborns. Since they are asymptomatic or mildly symptomatic, the majority of children do not undergo diagnostic investigations. Children who become infected with SARS-CoV-2 may have more upper respiratory tract than lower respiratory tract involvement. While there is no specific treatment for the disease, but hemodynamic stabilization of the infant, respiratory management and other daily care are essential. Drugs against cytokine storm syndrome such as corticosteroids or tocilizumab are under investigation, and this study found that routine antibiotics are not recommended. Antibiotics may be used if there is secondary bacterial infection. Standard immunoglobulins or hormonal treatments are not helpful. There is currently no information on the long-term effects of COVID-19 acquired in the neonatal period.</td>
<td>Infant treatment for COVID-19 is mainly symptomatic, and antiviral treatment is not generally needed in newborns. There are no data on the efficacy of anti-viral drugs in the newborn population.</td>
<td>Ovál F. SARS-CoV-2 Infection and the Newborn. Front Pediatr. 2020;8:294. doi:10.3389/fped.2020.00294</td>
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<tr>
<td>Children, adolescents, infants, hospitalized, clinical characteristics, Germany</td>
<td>22-May-20</td>
<td>Hospital Admission in Children and Adolescents With COVID-19</td>
<td>Dtsch Arztebl International</td>
<td>Correspondence</td>
<td>Between March 18 and May 4, 2020, the German Society for Pediatric Infectious Diseases collected data on 128 children and adolescents from 66 hospitals. Ninety-six (78%) had already been discharged. Sixteen patients (13%) required intensive care. An index patient was identified for 38% of the patients, and in 85% of these cases it was one of the parents. Forty-seven patients (37%) were infants, including 13 neonates (10%). Thirty-seven (29%) were 1 to 5 years old, 18 (14%) were schoolchildren up to 10 years old, 14 (11%) were aged 11 to 15 years, and 12 (9%) were over 15 years of age. Underlying diseases were present in 26% of the patients overall, but in 50% of those who received intensive care. Pneumonia occurred in only 15% of the patients, sepsis or sepsis-like clinical findings in 6%, encephalitis in 2%, and acute respiratory distress syndrome (ARDS) in another 2%. In 17% of cases no symptoms were documented.</td>
<td>Clinical data on children and adolescents admitted to 66 hospitals across Germany are presented; there was a high proportion of infants, generally mild course of disease, and pre-existing conditions were common.</td>
<td>Armann JP, Diffloth N, Simon A, et al. Hospital Admission in Children and Adolescents With COVID-19. Dtsch Arztebl Int. 2020;117(21):373-374. doi:10.3328/Arztebl.2020.0373</td>
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<tr>
<td>Pediatric cardiology, congenital heart disease</td>
<td>22-May-20</td>
<td>Coronavirus Disease 2019 (COVID-19) Pandemic Implications in Pediatric and Adult Congenital Heart Disease</td>
<td>Journal of the American Heart Association</td>
<td>Review Article</td>
<td>Given the increased risk for severe COVID-19 observed in adults with underlying cardiac involvement, there is concern that patients with pediatric and congenital heart disease (CHD) may likewise be at increased risk for severe infection. The cardiac manifestations of COVID-19 include myocarditis, arrhythmia and myocardial infarction. Importantly, the pandemic has stretched health care systems and many care team members are at risk for contracting and possibly transmitting the disease which may further impact the care of patients with cardiovascular disease. In this review, the effects of COVID-19 in the pediatric and young adult population are described and a review of cardiovascular involvement in COVID-19, focusing on implications for patients with congenital heart disease, is presented.</td>
<td>Emerging concerns over cardiovascular involvement of COVID-19 in children are discussed in this article, with particular attention to patients with congenital heart disease.</td>
<td>Alsaiid T, Aboulhosn JA, Cotts TB, et al. Coronavirus Disease 2019 (COVID-19) Pandemic Implications in Pediatric and Adult Congenital Heart Disease [published online 2020 May 22]. J Am Heart Assoc. doi:10.1161/JAHA.120.017224</td>
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<tr>
<td>Children, prolonged fecal shedding</td>
<td>22-May-20</td>
<td>Prolonged fecal shedding of SARS-CoV-2 in</td>
<td>Journal of Pediatric Gastro-</td>
<td>Short Communication</td>
<td>A review of databases to identify pediatric studies comparing the pattern of fecal and respiratory shedding of SARS-CoV-2 RNA was conducted. Four studies reporting data from 36 children were included. A higher proportion of findings from this review, SARS-CoV-2 RNA shedding seems to occur in the fecal-rectal region.</td>
<td>Based on findings from this review, SARS-CoV-2 RNA shedding seems to occur in the fecal-rectal region.</td>
<td>Santos VS, Gurgel RQ, Cuevas LE, et al. Prolonged fecal shedding of SARS-CoV-2 in...</td>
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<td>respiratory tract, transmissibility</td>
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<td>pediatric patients. A quantitative evidence synthesis</td>
<td>enterology and Nutrition</td>
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<td>of children had viral RNA shedding in stools after 14 days of symptoms onset compared to respiratory samples (RR = 3.2, 95%CI 1.2 to 8.9, I2 = 51%). Viral RNA shedding was longer in fecal samples with a mean difference of approximately 9 days (Mean Difference = 8.6, 95%CI 1.7 to 15.4, I2 = 77%) compared with respiratory samples. Although fecal SARS-CoV-2 RNA presence in feces does not confirm its transmissibility, the high and fast spread of the COVID-19 disease worldwide indicate other transmission routes are also plausible.</td>
<td>be present in feces for a longer time than in the respiratory tract of children.</td>
<td>2 in pediatric patients. A quantitative evidence synthesis [published online 2020 May 22]. JPGN. doi:10.1097/MPG.000000000002798</td>
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<td>Infants, BCG vaccine, immunization program, supply and distribution</td>
<td>22-May-20</td>
<td>Prioritizing Infants in a Time of Bacille Calmette-Guérin Vaccine Shortage Caused by Premature Expectations Against COVID-19</td>
<td>QJM: An International Journal of Medicine</td>
<td>Letter to Editor</td>
<td>The COVID-19 pandemic has accelerated a worldwide shortage not only of diagnostic test kits but also of essential drugs and vaccines. The consequences of such shortage are particularly complicated in the case of BCG vaccines (BCGV). Following the recent publication of new clinical trials conducted on the efficacy of BCGV against COVID-19, the expectation of the potential protective effect may lead to shortages of BCGV. Until evidence of new therapeutic targets are confirmed, the supply of BCGV should be prioritized for its approved use with known benefits and side effects, namely the prevention of tuberculosis meningitis and miliary tuberculosis in infants.</td>
<td>Until the potential protective effect of BCG vaccination against COVID-19 is confirmed, vaccine supply should be prioritized for its approved use in preventing tuberculosis in infants.</td>
<td>Senoy Y, Suzuki Y, Tsuda K, Takahashi K, Tanimoto T. Prioritizing infants in a time of Bacille Calmette-Guérin vaccine shortage caused by premature expectations against COVID-19 [published online 2020 May 22]. QJM. doi:10.1093/qjmed/hcaa179</td>
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<td>Pediatric asthma admissions, acute respiratory tract infections, airborne pollen, Slovenia</td>
<td>22-May-20</td>
<td>COVID-19 lockdown dropped the rate of paediatric asthma admissions</td>
<td>Archives of Disease in Childhood</td>
<td>Letter</td>
<td>Data from Slovenia show that during the first 5 weeks of the state’s lockdown for COVID-19, from March 16 to April 20, 2020, a 71% to 78% decrease in pediatric asthma admissions was observed, compared with the same time periods in the last 3 years. Regarding common asthma attack triggers, there was a 51% to 68% decrease in admissions for acute respiratory tract infections. Airborne pollen concentrations were within seasonally expected limits, and a 48% to 58% reduction in the air nitrogen dioxide (NO2) level was detected.</td>
<td>A reduction in pediatric asthma admissions was observed in Slovenia during the COVID-19 lockdown, compared with a similar period in previous years.</td>
<td>Krivec U, Kofol Seliger A, Tursic J. COVID-19 lockdown dropped the rate of paediatric asthma admissions [published online 2020 May 22]. Arch Dis Child. doi:10.1136/archdischild-2020-319522</td>
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<tr>
<td>Pediatric Crohn’s Disease, multisystem inflammatory syndrome, cytokine profile, infliximab, New York</td>
<td>22-May-20</td>
<td>Pediatric Crohn’s Disease and Multisystem Inflammatory Syndrome in Children (MIS-C) and COVID-19 Treated With Infliximab</td>
<td>Journal of Pediatric Gastroenterology and Nutrition</td>
<td>Short Communication</td>
<td>A case of severe COVID-19 infection is described in a 14-year-old, recently diagnosed pediatric Crohn’s disease patient successfully treated with Tumor Necrosis Factor-alpha (TNF-α) blockade. The patient presented with five days of fever, an erythematous maculopapular facial rash, and abdominal pain without respiratory symptoms. SARS-CoV-2 PCR was positive. Despite inpatient treatment for COVID-19 and a perianal abscess, the patient acutely decompensated with worsening fever, tachycardia, fluid-refractory hypotension, elevation of liver enzymes, and transformation of the rash into purpura extending from the face to the trunk, upper and lower extremities. Cytokine profile revealed rising levels of interleukin (IL)-6, IL-8, and TNF-α, higher than those described in either inflammatory bowel disease or severe COVID-19 alone. The patient was treated with infliximab for TNF-α blockade to address both moderately to severely active Crohn’s disease and multisystem inflammatory syndrome in children (MIS-C) temporally related to COVID-19. Within hours of infliximab treatment, fever, tachycardia and hypotension resolved and cytokine profile improved with normalization of TNF-α, a decrease in IL-6, and IL-8 concentrations.</td>
<td>This case supports a role for TNF-α blockade in the treatment of COVID-19 related inflammatory cascade in a pediatric Crohn’s disease patient.</td>
<td>Dolinger MT, Person H, Smith R, et al. Pediatric Crohn’s Disease and Multisystem Inflammatory Syndrome in Children (MIS-C) and COVID-19 Treated with Infliximab [published online 2020 May 22]. J Pediatr Gastroenterol Nutr. doi:10.1097/MPG.0000000000002809</td>
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<td>Children, viral shedding, feces,</td>
<td>22-May-20</td>
<td>Prolonged Fecal Shedding of SARS-CoV-2 in Childhood</td>
<td>Journal of Pediatric Gastroenterology and Nutrition</td>
<td>Short Communication</td>
<td>In this review, four studies reporting data from 36 children were included that compare the pattern of fecal and respiratory shedding of SARS-CoV-2 RNA. A higher proportion of children had viral shedding in stools after 14 days of symptoms onset compared to respiratory samples (RR= 3.2, 95%CI 1.2 to 8.9, I2 = 51%). Viral RNA shedding was longer in fecal samples with a mean difference of approximately 9 days (Mean Difference = 8.6, 95%CI 1.7 to 15.4, I2 = 77%) compared with respiratory samples. Although fecal SARS-CoV-2 RNA presence in feces does not confirm its transmissibility, the high and fast spread of the COVID-19 disease worldwide indicate other transmission routes are also plausible.</td>
<td>Based on findings from this study, SARS-CoV-2 shedding seems to be prolonged in fecal samples.</td>
<td>Santos VS, Gurgoi RQ, Cuevas LE, Martins-Filho PR. Prolonged fecal shedding of</td>
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<td>Children, pediatric operative procedure, infection control, New York</td>
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<td>Children, hospitalization, ICU admission, outpatients, Spain</td>
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<td>Placental pathology, maternal vascular malperfusion, perinatal outcomes, Chicago, USA</td>
<td>22-May-20</td>
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<td>Pediatric Patients. A Quantitative Evidence Synthesis</td>
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<td>The Perioperative Services Response at a Major Children’s Hospital During the Peak of the COVID-19 Pandemic in New York City</td>
<td>Surgical Perspectives</td>
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<td>SARS-CoV-2 Infection in Ambulatory and Hospitalised Spanish Children</td>
<td>Archives of Disease in Childhood</td>
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<td>Placental Pathology in COVID-19</td>
<td>American Journal of Clinical Pathology</td>
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### Summary & Key Points

- Placental histopathologic findings revealed villous edema and a retroplacental hematoma. Overall, only intervillosus thrombi were notable for histopathologic findings. Compared to controls, third trimester placentas were significantly more likely to show at least one feature of maternal vascular malperfusion (MVM), particularly abnormal or injured maternal vessels, which reflect abnormalities in oxygenation within the intervillous space associated with adverse perinatal outcomes, and intervillosus thrombi. The placenta from the patient with intrauterine fetal demise showed villous edema and a retroplacental hematoma. Overall, only 1 COVID-19 patient was hypertensive despite the association of MVM with...
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<td>Neonatal infection, acute respiratory failure, USA</td>
<td>22-May-20</td>
<td>A Case Report of Neonatal Acute Respiratory Failure Due to SARS-CoV-2</td>
<td>Journal of the Pediatric Infectious Diseases Society</td>
<td>Case Report</td>
<td>On April 1, 2020, a 10-day-old male infant (born at 39 weeks' gestation via normal spontaneous vaginal delivery) presented to the Emergency Department (ED) with increased nasal secretion and labored breathing, approximately 1 week after exposure to family members who had upper respiratory symptoms the week prior. At the ED, laboratory and clinical findings were consistent with hypoxic respiratory failure. On admission to the PICU, increased nasal flaring and secretions, increased 'work of breathing', substernal retractions, and lethargy were noted, and SARS-CoV-2 was detected by RT-PCR on his nasopharyngeal (NP) swab. On day 3, the patient was successfully weaned off nasal cannula oxygen to room air and was discharged the following day. Five days later, the patient returned with increased nasal congestion, substernal retractions, and decreased feeding. NP swabs from both the patient and the mother tested positive for SARS-CoV-2; the infant's NP swab showed qualitatively lower viral load than the first specimen tested five days prior. The patient's respiratory symptoms resolved, and he was discharged the next morning.</td>
<td>This case presents a unique presentation of respiratory failure due to SARS-CoV-2 in a neonatal patient.</td>
<td>Frost I, Tseng K, Hauck S, et al. Risks to Children under-five in India from COVID-19 [published online 2020 May 22]. medRxiv. doi:10.1101/2020.05.18.20105239</td>
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<td>Labor and delivery, visitor policy, labor companionship, breastfeeding</td>
<td>22-May-20</td>
<td>Labor and Delivery Visitor Policies During the COVID-19 Pandemic: Balancing Risks and Benefits</td>
<td>JAMA</td>
<td>Viewpoint</td>
<td>Although variation exists in visitor policies, many hospitals have instituted a limit of 1 adult visitor for each patient in labor and delivery units. As recommended by the Centers for Disease Control and Prevention and the American College of Obstetricians and Gynecologists, this visitor should be afibrile and screened for symptoms prior to entry. Apart from the emotional rationale, ethical and clinical reasoning supports excluding labor and delivery units from visitor prohibition policies. As noted by the WHO, continuous companionship during labor is recommended for all pregnant women to potentially improve labor outcomes. In addition, although guidelines to physically distance infants are evidence-based, they are not pragmatic. Many families, especially if both the patient and visitor are SARS-CoV-2 positive, lack the resources to isolate from the newborn for 14 days. Furthermore, risk of harm to bonding and breastfeeding initiation exists. Implementing a labor and delivery unit visitor policy necessitates balancing risks and benefits to the patient, the visitor, the community, the health care team, and the infant.</td>
<td>This article considers the risks and benefits of restrictive visitor policies on labor and deliver units.</td>
<td>Arora KS, Mauch JT, Gibson KS. Labor and Delivery Visitor Policies During the COVID-19 Pandemic: Balancing Risks and Benefits [published online 2020 May 22]. JAMA. doi:10.1001/jama.2020.7563</td>
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<td>Children, malnutrition, indoor air pollution, case rate, prevalence scenarios, India</td>
<td>22-May-20</td>
<td>Risks to Children under-five in India from COVID-19</td>
<td>medRxiv</td>
<td>Preprint (not peer reviewed)</td>
<td>Though children are at relatively lower risk for SARS-CoV-2 infection compared to adults, the Indian population has a large young demographic that is likely to be at higher risk due to exposure to pollution, malnutrition and poor access to medical care. The authors combined district family household survey data with data from the COVID-19 outbreak in China to analyze the potential impact of COVID-19 on children under the age of 5 in India, under three different scenarios; each of which assumed the prevalence of infection to be 0.5%, 1%, or 5%. In the lowest prevalence scenario, across the most populous 18 Indian states, asymptomatic, non-hospitalized symptomatic and hospitalized symptomatic cases could reach 87,200, 412,900 and 31,900, respectively. In a moderate prevalence scenario, these figures reach 174,500, 825,800, and 63,800. In the worst</td>
<td>Estimates from this study show that the COVID-19 pandemic may pose substantial threat to children, in India, especially those suffering from malnutrition and exposure to indoor air pollution, with limited access to health services.</td>
<td>Frost I, Tseng K, Hauck S, et al. Risks to Children under-five in India from COVID-19 [published online 2020 May 22]. medRxiv. doi:10.1101/2020.05.18.20105239</td>
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<td>Pregnancy, neonates, severe pneumonia, inflammatory markers, neutrophil/lymphocyte ratio, breastfeeding, Spain</td>
<td>22-May-20</td>
<td>Clinical Course of Coronavirus Disease-2019 (COVID-19) in Pregnancy</td>
<td>Acta Obstetricia et Gynecologica Scandinavica</td>
<td>Original Article</td>
<td>Data on the first 60 pregnant women with COVID-19 at the Puerta de Hierro University Hospital, Madrid, Spain from March 14 to April 14, 2020 were reviewed. The most common symptoms were fever and cough (75.5%, each) followed by dyspnea (37.8%). 41 patients (68.6%) required hospital admission (18 due to disease worsening and 23 for delivery) of whom 21 patients (35%) underwent pharmacological treatment, including hydroxychloroquine, antivirals, antibiotics and tocilizumab. No renal or cardiac failures or maternal deaths were reported. Lymphopenia (50%), thrombocytopenia (25%), and elevated C-reactive protein (CRP) (59%) were observed in the early stages of the disease. Median CRP, D-dimer and the neutrophil/lymphocyte ratio were elevated. High CRP and D-dimer levels were the parameters most frequently associated with severe pneumonia. The neutrophil/lymphocyte ratio was found to be the most sensitive marker for disease improvement (relative risk: 6.65; 95% CI: 4.1-5.9). During the study period, 23 women delivered, 18 (78%) vaginally. All newborns tested negative for SARS-CoV-2 by RT-PCR on nasopharyngeal swabs. Of 21 breastfed neonates, two were admitted to the NICU for respiratory distress syndrome and hemolytic anemia, respectively. No SARS-CoV-2 was detected in placental tissue.</td>
<td>In this study of pregnant patients with COVID-19, CRP and D-dimer levels positively correlated with severe pneumonia and the neutrophil/lymphocyte ratio decreased as the patients improved clinically. No cases of vertical or horizontal transmission were diagnosed in neonates, breastfed or not.</td>
<td>Pereira A, Cruz-Melguizo S, Adrien M, Fuentes L, Marin E, Perez-Medina T. Clinical course of Coronavirus Disease-2019 (COVID-19) in pregnancy [published online 2020 May 22]. Acta Obstet Gynecol Scand. doi:10.1111/aogs.13921</td>
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<tr>
<td>Children, chest CT, radiological findings, diagnosis, management, China</td>
<td>22-May-20</td>
<td>CT Features of Coronavirus Disease (COVID-19) in 30 Pediatric Patients</td>
<td>American Journal of Roentgenology</td>
<td>Original Research</td>
<td>This retrospective study reviewed computed tomography (CT) findings and clinical symptoms of 30 pediatric patients (10 months - 18 years) with laboratory-confirmed COVID-19 at six centers in China from January 23, 2020, to February 8, 2020. Overall among children, CT findings were often negative (77%). Positive CT findings seen in children included ground-glass opacities with a peripheral lung distribution, a crazy paving pattern, and the halo and reverse halo signs. There was a correlation between increasing age and increasing severity of findings, consistent with reported symptomatology in children. Eleven of 30 patients (37%) underwent follow-up chest CT, with 10 of 11 examinations (91%) showing no change, raising questions about the utility of CT in the diagnosis and management of COVID-19 in children.</td>
<td>The present study describes chest CT findings in children with COVID-19 and questions the utility of CT in the diagnosis and management of pediatric patients.</td>
<td>Steinberger S, Lin B, Bernheim A, et al. CT Features of Coronavirus Disease (COVID-19) in 30 Pediatric Patients [published online 2020 May 22]. AJR Am J Roentgenol. doi:10.2214/AJR.20.23145</td>
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<tr>
<td>Children, family cluster, RNA-persistence, gastrointestinal tract, nasopharynx, Germany</td>
<td>22-May-20</td>
<td>Clinical and Epidemiological Features of a Family Cluster of Symptomatic and Asymptomatic SARS-CoV-2 Infection</td>
<td>Journal of the Pediatric Infectious Diseases Society</td>
<td>Brief Report</td>
<td>This report describes the clinical and virological characteristics of three children in a family cluster of SARS-CoV-2 infection. While the youngest child was not infected, both parents and two older children (2 and 5 years old) became infected. The children were only briefly symptomatic with predominant gastrointestinal symptoms. They initially shed viral RNA from the upper respiratory tract but cleared the virus after five to six days in the nasopharynx. However, SARS-CoV2 RNA was continuously detected in the stools of the children for more than 4 weeks indicating predominant replication within the gastrointestinal tract.</td>
<td>From this report of a family cluster, two children with mildly symptomatic COVID-19 displayed persistent shedding of viral RNA in stool samples.</td>
<td>Wolf GK, Glueck T, Huebner J, et al. Clinical and Epidemiological Features of a Family Cluster of Symptomatic and Asymptomatic SARS-CoV-2 Infection [published online 2020 May 22]. J Pediatric Infect Dis Soc. doi:10.1093/jpids/piaa060</td>
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</table>
**Summary & Key Points**

As a result of the COVID-19 pandemic, fertility clinics closed or sharply reduced clinical operation, which shifted the management of IVF laboratories in three phases: shutdown preparation; maintenance during shutdown; and restart. Since evidence-based response options were not available, many laboratory managers-based decisions regarding procedures on opinion and experience. The article consists of the personal experiences of laboratory managers from seven different countries at different stages of the pandemic (China, Italy, Spain, France, UK, Brazil, and Australia) to provide additional measures in response to the COVID-19 pandemic, since pandemic-specific guidelines are not available. The authors detail risks involved with each of the three phases considering the current scientific evidence and how much is still unknown. The authors provide these responses to guide future practices for IVF laboratories responding to pandemics.

**Specific Observations**

Since much is unknown about the virus, laboratory managers had to make decisions without scientific evidence, so this paper is a presentation of different approaches for laboratory practice across different countries.

**Full Citation**


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**Key Terms**

- IVF, fertility, laboratory practices, laboratory management
- Pregnancy, breastfeeding, breast milk samples, Germany
- COVID-19, maternal and child health, nutrition – literature repository

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<th>Key Terms</th>
<th>Date Published</th>
<th>Title</th>
<th>Journal / Source</th>
<th>Type of Publication</th>
<th>Summary &amp; Key Points</th>
<th>Specific Observations</th>
<th>Full Citation</th>
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<td></td>
<td>21-May-20</td>
<td>Managing the IVF laboratory during a pandemic: international perspectives from laboratory managers</td>
<td>Reproductive Biomedicine Online</td>
<td>Original Article</td>
<td>As a result of the COVID-19 pandemic, fertility clinics closed or sharply reduced clinical operation, which shifted the management of IVF laboratories in three phases: shutdown preparation; maintenance during shutdown; and restart. Since evidence-based response options were not available, many laboratory managers-based decisions regarding procedures on opinion and experience. The article consists of the personal experiences of laboratory managers from seven different countries at different stages of the pandemic (China, Italy, Spain, France, UK, Brazil, and Australia) to provide additional measures in response to the COVID-19 pandemic, since pandemic-specific guidelines are not available. The authors detail risks involved with each of the three phases considering the current scientific evidence and how much is still unknown. The authors provide these responses to guide future practices for IVF laboratories responding to pandemics.</td>
<td>Since much is unknown about the virus, laboratory managers had to make decisions without scientific evidence, so this paper is a presentation of different approaches for laboratory practice across different countries.</td>
<td>Hickman C, Rogers S, Huang G, et al. Managing the IVF laboratory during a pandemic: international perspectives from laboratory managers. Reprod Biomed Online. 2020;41(2):141-150. doi:10.1016/j.rbmo.2020.05.006</td>
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<td>21-May-20</td>
<td>Detection of SARS-CoV-2 in human breast milk</td>
<td>The Lancet</td>
<td>Correspondence</td>
<td>Recent investigations show no evidence for SARS-CoV-2 in human breast milk, however sample sizes are small. In this report, authors analyzed milk samples from two nursing mothers who were diagnosed with COVID-19 days after delivery of and room sharing, with each other and with their newborns. Following admission and delivery, four samples from Mother 1 tested negative. By contrast, SARS-CoV-2 RNA was detected in milk from Mother 2 at days 10, 12, and 13; samples taken subsequently were negative. Detection of viral RNA in Mother 2 coincided with mild COVID-19 symptoms and a SARS-CoV-2 positive diagnostic test of Newborn 2. Mother 2 had been wearing a surgical mask since the onset of symptoms and followed safety precautions when handling or feeding the neonate. Whether Newborn 2 was infected by breastfeeding or other modes of transmission remains unclear.</td>
<td>In this report (previously posted as a preprint) of two nursing mothers with COVID-19, both newborns tested positive for SARS-CoV-2 infection within 1-2 weeks of birth. SARS-CoV-2 RNA was only detected in one mother’s consecutive breast milk samples.</td>
<td>Groß R, Conzelmann C, Müller JA, et al. Detection of SARS-CoV-2 in human breast milk. Lancet. 2020; doi:10.1016/S0140-6736(20)31181-8</td>
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<td></td>
<td>21-May-20</td>
<td>COVID-19 in Pregnant Women: Case Series From One Large New York City Obstetrical Practice</td>
<td>American Journal of Perinatology</td>
<td>Original Article</td>
<td>From March 22 to April 30, 2020, all pregnant women from one large obstetrical practice in New York City were contacted regularly to inquire about symptoms of COVID-19 (fever, cough, shortness of breath, malaise, anosmia), or sick contacts. In total, 757 pregnant women were evaluated, and 92 had known or suspected COVID-19 (12.2%, 95% CI: 10.0-14.7%). Of these 92 women, 33 (36%) had positive COVID-19 test results. Only one woman required hospital admission for 5 days due to COVID-19 (1.1%, 95% CI: 0.2-5.9%). One other woman received home oxygen. No women required mechanical ventilation and there were no maternal deaths. One woman had an unexplained fetal demise at 14 weeks' gestation around the time of her COVID-19 symptoms. Twenty one of the 92 women have delivered, and all were uncomplicated; neonatal testing is not currently available.</td>
<td>Preliminary results from an obstetric practice in New York City found that overall morbidity was low among 92 women with confirmed or presumed COVID-19.</td>
<td>Fox NS, Melka S. COVID-19 in Pregnant Women: Case Series From One Large New York City Obstetrical Practice [published online 2020 May 21]. Am J Perinatol. doi:10.1055/s-0040-1712529</td>
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<td></td>
<td>21-May-20</td>
<td>Update on Clinical Outcomes of Women With COVID-19 During Pregnancy</td>
<td>International Journal of Gynaecology and Obstetrics</td>
<td>Brief Communication</td>
<td>The present article reports what is currently known about pregnancy outcomes among women with SARS-CoV-2 infection at the time of publication. A total of 16 pregnant women with RT-PCR confirmed COVID-19, identified up until February 16, 2020 at an obstetric unit in Wuhan, China, were included in this retrospective cohort study. Most women (n=14, 87.5%) had pregnancy comorbidities and/or fetal complications. Seven patients required supplemental oxygen, but none required ventilatory support. Of the 16 patients, 12 women delivered via cesarean section, while four delivered vaginally. There were no neonatal or maternal deaths. The median in a small cohort of pregnant women with COVID-19, findings show no evidence of vertical transmission; all neonates tested negative for SARS-CoV-2, and no maternal or</td>
<td>In a small cohort of pregnant women with COVID-19, findings show no evidence of vertical transmission; all neonates tested negative for SARS-CoV-2, and no maternal or</td>
<td>Zeng Y, Lin L, Yan Q, et al. Update on clinical outcomes of women with COVID-19 during pregnancy [published online 2020 May 21]. Int J Gynaecol Obstet. doi:10.1002/ijgo.13236</td>
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<td>Key Terms</td>
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<td>Neonates, care practices, mother-newborn separation, breastfeeding, discharge, Penn State, USA</td>
<td>21-May-20</td>
<td>Management of Newborns Exposed to Mothers With Confirmed or Suspected COVID-19</td>
<td>Journal of Perinatology</td>
<td>Review Article</td>
<td>Management of newborns born to women with confirmed or suspected COVID-19 is largely center-specific, given local customs and availability of resources. The authors of this report draw upon their limited experience and anecdotal reports from nearby institutions to develop a triage algorithm at the Penn State Health Milton S. Hershey Medical Center that may be useful for other centers anticipating similar surges in cases of exposed newborns. Several care practices that have changed in the COVID-19 era are discussed including the use of antenatal steroids, delayed cord clamping, mother-newborn separation, and breastfeeding in accordance with the recommendations of international organizations like the WHO. Moreover, this paper provides guidance on the most suitable respiratory support for newborns, as well as for the discharge process and beyond.</td>
<td>This paper provides guidance for management of newborns exposed to mothers with confirmed or suspected COVID-19 in the perinatal period.</td>
<td>Amatya S, Corr TE, Gandhi CK, et al. Management of newborns exposed to mothers with confirmed or suspected COVID-19 [published online 2020 May 21]. J Perinatol. doi:10.1038/s41372-020-0695-0</td>
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<td>Children, Kawasaki-like hyper-inflammatory syndrome, antibody titers, Italy</td>
<td>21-May-20</td>
<td>SARS-CoV-2-Induced Kawasaki-Like Hyperinflammatory Syndrome: A Novel COVID Phenotype in Children</td>
<td>Pediatrics</td>
<td>Case Report</td>
<td>This report describes two children (12 and 7 years old) with persistent fever and profuse diarrhea who developed signs of mucocutaneous involvement (conjunctivitis, fissured lips, skin rash, erythema, and edema of the hands and feet). Blood tests revealed elevated markers of inflammation, lymphopenia, thrombocytopenia, and complement consumptions. Afterward, diffuse edema with hypoalbuminemia appeared in the context of a capillary leak syndrome. In both patients, repeated nasal swabs for SARS-CoV-2 were negative but each had high titers of IgG and IgM against the SARS-CoV-2 virus. The negative PCR in the presence of IgM and IgG suggest that the inflammatory response developed in the late phase of viral infection, when SARS-CoV-2 was not detectable in the upper airway. Both patients improved after IV corticosteroid treatment. The authors propose the name of “SARS-CoV-2-Induced Kawasaki-Like Hyperinflammatory Syndrome” (SCiKH Syndrome) to describe these patients.</td>
<td>This report presents two cases of hyperinflammatory syndrome in children who tested negative for SARS-CoV-2 on nasal swab but had high antibody titers against the virus.</td>
<td>Liciardi F, Pruccoli G, Denina M, et al. SARS-CoV-2-Induced Kawasaki-Like Hyperinflammatory Syndrome: A Novel COVID Phenotype in Children [published online 2020 May 21]. Pediatrics. doi:10.1542/peds.2020-1711</td>
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<td>Children, emergency department protocol, intrahospital transmission, Italy</td>
<td>21-May-20</td>
<td>A Pediatric Emergency Department Protocol to Avoid Intrahospital Spread of SARS-CoV-2 During the Outbreak in Bergamo, Italy</td>
<td>The Journal of Pediatrics</td>
<td>Brief Report</td>
<td>To evaluate whether children play a role in intrahospital spread of SARS-CoV-2 infection, the authors developed a pediatric emergency department protocol at Hospital Papa Giovanni XXIII, which is the largest referral site in Bergamo, Lombardy, Italy. The protocol was adopted on March 6, 2020 and consisted of 3 parts: triage optimization, risk assessment and management in the emergency room, and patient management on the pediatric unit. During the study period, 58 nasopharyngeal/oropharyngeal (NP/OP) swabs were performed to screen all pediatric patients presenting to the Emergency Department (ED). Among patients admitted from the ED, 9 of 15 (69%) suspected cases had a positive NP/OP swab. Only 2 children were admitted for respiratory problems, 6 children had no or very mild respiratory symptoms, and 6 newborns/infants had fever without signs of localization. After the adoption of spatial reorganization of the ED through the protocol, only 4 cases of COVID-19 occurred among health care professionals.</td>
<td>The authors propose a strict surveillance and management protocol to prevent intrahospital spread of SARS-CoV-2 in pediatric emergency departments.</td>
<td>Nicastro E, Mazza A, Gervasini A, Di Giorgio A, D’Antiga L. A Pediatric Emergency Department Protocol to Avoid Intrahospital Spread of SARS-CoV-2 during the Outbreak in Bergamo, Italy [published online 2020 Apr 21]. J Pediatr. 2020;S0022-3476(20)30470-4.</td>
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### Key Terms

| Child, IgG antibodies, cutaneous vasculitis, Italy | 21-May-20 | Images in Practice: Painful Cutaneous Vasculitis in a SARS-CoV-2 IgG-Positive Child | Pain and Therapy | Case Report | During the pandemic period in Italy, the authors observed more than ten pediatric patients who tested IgG positive for SARS-CoV-2 with painful vasculitic skin lesions on the feet that required modest pain relief therapy. Here, the case history of one of these patients is described along with pictures of her condition. The 11-year-old patient had erythematous chilblain-like skin lesions on her feet and several ulcerative lesions with dyschromia of the nails. The lack of finger pressure clearing of the lesions suggests that the vasculitis in this patient was of an ischemic hemorrhagic nature. All blood tests were negative, and no SARS-CoV-2 virus was detected on nasal or oropharyngeal swab, while serologic testing detected SARS-CoV-2 IgG antibodies. After 7 days, analgesic therapy was discontinued, and after 15 days the skin lesions were completely resolved. |
|-------------------------------------------------|-----------|---------------------------------------------------------------------------------|-----------------|---------------|-------------------------------------------------|-----------------------------------------------|-------------------------------------------------|
| Children, hydroxychloroquine, safety profile, dosing, clinical trials | 21-May-20 | Efficacy, Safety and Cost-Effectiveness of Hydroxychloroquine in Children With COVID-19: A Call for Evidence | Acta Paediatrica | A Different View | The COVID-19 pandemic has created an urgent need to identify effective medications for its prevention and treatment. Among these treatments, the off-label use of hydroxychloroquine (HCQ), a less toxic derivate of chloroquine, has become a common practice among clinicians, including pediatricians, despite lack of evidence of its clinical efficacy for this indication (especially for pediatric patients) at present. The majority of children with COVID-19 have mild symptoms, and widespread use of HCQ may confer only minimal benefit. In addition, there are concerns surrounding the safety profile of HCQ and uncertainties regarding its dosing. Randomized controlled trials are necessary to clarify further the clinical benefit of HCQ in pediatric patients with SARS-CoV-2 infection. | There is limited evidence of the clinical efficacy of hydroxychloroquine in treating COVID-19, and many uncertainties exist surrounding its safety profile and dosing especially in children. |
| Preterm newborn, breastfeeding, breast milk sample, expressed maternal milk, Italy | 21-May-20 | Lack of Viral Transmission to Preterm Newborn From a COVID-19 Positive Breastfeeding Mother at 11 Days Postpartum | Journal of Medical Virology | Letter to the Editor | This paper reports the case of a mother who presented with clinical symptoms of respiratory tract infection 11 days after the spontaneous delivery of a preterm female newborn (32 weeks + 2 days gestation). Since birth, the newborn was both directly breastfed and fed expressed maternal milk; she also received Kangaroo Mother Care sessions. 11 days after delivery, the mother tested positive for SARS-CoV-2 on RT-PCR of her nasopharyngeal swab. RT-PCR assay of her breast milk samples (pumped at the peak of maternal febrile symptoms) was negative for SARS-CoV-2 allowing the continued provision of nutrition with expressed maternal milk. During hospital stay, the mother and healthcare providers followed hygiene precautions, including wearing surgical masks, hand washing, and using alcohol-based solutions to clean the surfaces. The neonate continued to show normal vital parameters and was discharged. Breast milk contains many components, including immunoglobulins, probiotic organisms, and growth factors that support maturation of the infant's own immune system. | In this case, a nursing mother was diagnosed with COVID-19 11 days postpartum. At the peak of symptoms, her breast milk sample tested negative for SARS-CoV-2 on RT-PCR, thus her newborn continued to be fed with expressed maternal milk. |
| Children, clinical characteristics, respiratory tract infection, SARS-CoV | 21-May-20 | Clinical Characteristics of COVID-19 in Children: Are They Similar to Those of SARS? | Pediatric Pulmonology | Review | By examining the clinical data available in the public domain, the present work clarifies the clinical presentations in children with COVID-19 in China. Statistical significance tests and adjusted odds ratios estimation were performed on the children (age below 18) and adults (age 18 or above) cohorts in China. SARS-CoV and SARS-CoV-2 shared similar clinical features. Lower respiratory tract infection was less prominent in children as evidenced by the relatively low prevalence in chest pain/discomfort and dyspnea. Similar to SARS, younger children had a less aggressive clinical course, compared with adolescents. While fewer symptoms were observed in | SARS-CoV and SARS-CoV-2 share similar clinical features and less aggressive course in younger children. |

### Specific Observations

- In this pediatric case, the authors draw correlation between skin lesions and positive results for SARS-CoV-2 IgG antibodies.
- There is limited evidence of the clinical efficacy of hydroxychloroquine in treating COVID-19, and many uncertainties exist surrounding its safety profile and dosing especially in children.
- In this case, a nursing mother was diagnosed with COVID-19 11 days postpartum. At the peak of symptoms, her breast milk sample tested negative for SARS-CoV-2 on RT-PCR, thus her newborn continued to be fed with expressed maternal milk.
Changes in RT-PCR-positive SARS-CoV-2 rates in adults and children according to the epidemic stages

In this prospective multicenter study involving 45 pediatric units, the RT-PCR results of nasopharyngeal swabs in France from March 2, 2020 to April 26, 2020 are reported. During the study period, 52,588 RT-PCR tests for SARS-CoV-2 were performed, 6,490 in children and 46,098 in adults. The rate of positive tests for children was 2- to 7-fold less than that for adults. These rates varied according to the time of the epidemic and were higher at the peak. The lower rates of positivity in children persisted during the surveillance period but varied according to the time in the epidemic.

Findings from this study showed lower rates of positive SARS-CoV-2 RT-PCR tests in children compared to adults, but rates varied according to epidemic stage.

Changes in RT-PCR-positive SARS-CoV-2 rates in adults and children according to the epidemic stages [published online 2020 May 21]. medRxiv. doi:10.1101/2020.05.18.20098863

The care of pregnant women during the COVID-19 pandemic - response of a large health system in New York

The rapid progression of the COVID-19 outbreak has placed a strain on resources in the New York metropolitan region, leading to major changes in the delivery of obstetrical care, while maintaining patient safety. In this report, the authors describe their pandemic response at the largest health system in the metropolitan region. The hospital footprint for Obstetrics was dramatically reduced to make room for the rapidly increasing numbers of COVID-19 patients, and established guidelines were quickly modified to reduce potential staff and patient exposures. New communication strategies

The authors report their experiences in changing the delivery of obstetrical care at a large health system in the New York metropolitan region, Rochelson B, Nirmaroff M, Combs A, et al. The care of pregnant women during the COVID-19 pandemic - response of a large health system in metropolitan New York [published online 2020

Early pregnancy, termination, fetal development, SARS-CoV China

Summary & Key Points

Children compared to adults, there is not yet sufficient evidence to conclude shorter hospital stay in children.

Early pregnancy termination should be individualized and weighed against the potential risks, with safety paramount and risks carefully assessed.

Findings from this study showed lower rates of positive SARS-CoV-2 RT-PCR tests in children compared to adults, but rates varied according to epidemic stage.

Early pregnancy, termination, fetal development, SARS-CoV China

Summary & Key Points

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Findings from this study showed lower rates of positive SARS-CoV-2 RT-PCR tests in children compared to adults, but rates varied according to epidemic stage.
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<td>metropolitan area</td>
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<td>were developed to facilitate maternity care across our hospitals, with significantly limited resources in personnel, equipment, and space. The lessons learned from these unexpected challenges offered an opportunity to reassess the delivery of obstetrical care without compromising quality and safety.</td>
<td>during the COVID-19 pandemic.</td>
<td>May 20; J Perinat Med. doi:10.1515/jpm-2020-0175</td>
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<td>Symptomatic infants, children, adolescents, nasopharyngeal viral load, New York, USA</td>
<td>20-May-20</td>
<td>Symptomatic Infants Have Higher Nasopharyngeal SARS-CoV-2 Viral Loads but Less Severe Disease Than Older Children</td>
<td>Clinical Infectious Diseases</td>
<td>Correspondence</td>
<td>This correspondence reports nasopharyngeal (NP) viral load among infants, children and adolescents who were hospitalized and discharged from a children’s hospital in New York between March 14 and April 24, 2020. Among 57 patients testing positive for SARS-CoV-2, 20 (35.1%) were infants (12 months or younger). Older children and adolescents ranged from 1 year to 21 years of age. Mean NP viral load was significantly higher in infants compared to older children and adolescents (mean Ct 21.05 vs 27.25, p&lt;0.01). However, a significantly lower proportion of infants had severe disease as compared to the other patients (n=1 (5%) vs n=12 (32.4%), p=0.02). Mean time to test positivity from symptom onset was lower in infants than older children (2 vs 3.8 days, p&lt;0.01). Similar proportions in both groups were tested within seven days of symptom onset (91.2% vs 100%, p=0.47).</td>
<td>This report suggests that symptomatic infants have higher nasopharyngeal viral loads at presentation but develop less severe disease, as compared to older children and adolescents.</td>
<td>Zachariah P, Halabi KC, Johnson CL, Whitter S, Sepulveda J, Green DA. Symptomatic Infants Have Higher Nasopharyngeal SARS-CoV-2 Viral Loads but Less Severe Disease than Older Children [published online 2020 May 20]. Clin Infect Dis. doi:10.1093/cid/ciaa608</td>
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<td>Pregnancy, mother-infant dyad, delivery, NICU, breastfeeding, rooming-in, Italy</td>
<td>20-May-20</td>
<td>Management of the Mother-Infant Dyad With Suspected or Confirmed SARS-CoV-2 Infection in a Highly Epidemic Context</td>
<td>Journal of Neonatal and Perinatal Medicine</td>
<td>Article Commentary</td>
<td>During the COVID-19 pandemic, networking among maternity centers and anticipatory planning is essential to organize assistance to mothers and neonates in maternity and neonatal wards. Early identification of SARS-CoV-2 infected mothers, before delivery, allows their management through dedicated protocols and minimizes the risk of transmission for other patients and healthcare providers. Vertical transmission of SARS-CoV-2 cannot be excluded at present and should be ruled out as soon as possible after birth.</td>
<td>This summary addresses a number of aspects of mother-infant dyad management during SARS-CoV-2 epidemic.</td>
<td>Pietrasanta C, Pugni L, Ronchi A, et al. Management of the mother-infant dyad with suspected or confirmed SARS-CoV-2 infection in a highly epidemic context [published online 2020 May 20]. J Neonatal Perinatal Med. doi:10.3233/NPM-200478</td>
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<td>Children, immunosuppression, chronic kidney disease, nephrotic syndrome, Spain</td>
<td>20-May-20</td>
<td>SARS-CoV-2 Infection in Spanish Children With Chronic Kidney Pathologies</td>
<td>Pediatric Nephrology</td>
<td>Brief Report</td>
<td>From March until April 15, 2020, 16 children with chronic renal pathologies were diagnosed with COVID-19 in Spain. Of these, 6 had end-stage kidney disease (ESKD) (3 transplant recipients and 3 on chronic hemodialysis). The severity of symptoms was mild in all the patients, with little radiological involvement. Three patients were asymptomatic. Fever and upper respiratory symptoms were the most frequent findings. Basal glomerular filtration worsened in 3 patients; however, recovery was rapidly achieved with rehydration and drug dose adjustment. In 2 patients diagnosed with steroid-dependent nephrotic syndrome, COVID-19 provoked a disease relapse. None required oxygen therapy, and 7 could be managed as outpatients.</td>
<td>COVID-19 disease appears to have a similar clinical course in children with underlying chronic renal pathologies, even in immunosuppressed cases, as in healthy children of the same age; however, special attention must be paid to fluid management and drug dose adjustment.</td>
<td>Melgosa M, Madrid A, Álvarez O, et al. SARS-CoV-2 infection in Spanish children with chronic kidney pathologies [published online 2020 May 20]. Pediatr Nephrol. doi:10.1007/s00467-020-04597-1</td>
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<td>Pregnancy, clinical characteristics, obesity, African</td>
<td>20-May-20</td>
<td>Pregnancy Affected by SARS-CoV-2 Infection: A Flash</td>
<td>Journal of Maternal Fetal and</td>
<td>Short Report</td>
<td>This short report describes the details of the hospital course of the first 16 cases involving pregnant women, admitted to an urban-suburban community general hospital in Wayne County Michigan, from March 26 to April 10, 2020. 198 patients were included during the observation period, Early experience from Michigan indicates a variety of clinical forms in pregnancy women</td>
<td>Qadri F, Mariona F. Pregnancy affected by SARS-CoV-2 infection: a flash report from Michigan</td>
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<td>hospitalization, nutrition protocol, rehabilitation unit, Italy</td>
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<td>Rehabilitation Unit</td>
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<td>reduction of food intake caused by nausea, diarrhea, and the loss of appetite that increase risk of malnutrition in COVID-19 patients. It has been demonstrated that malnutrition delays healing times and increases hospitalization periods. Therefore, the prevention, diagnosis, and treatment of malnutrition must be regularly included in the management of hospitalized COVID-19 patients in a rehabilitation department, to improve both short and long-term prognosis. Collaboration between the Rehabilitation Unit of the San Raffaele Scientific Institute (Milan, Italy) and the dietetics service created an interdisciplinary and integrated management of the nutritional status of COVID-19 patients, based on the latest scientific data. This three-step nutritional protocol, reported here, includes nutritional assessment and malnutrition screening; nutritional treatment; and continuous monitoring.</td>
<td>19 patients and present a nutritional protocol for COVID-19 patients in a rehabilitation unit.</td>
<td>rehabilitation unit [published online 2020 May 20]. Eur J Clin Nutr. doi:10.1038/s41430-020-0664-x</td>
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<td>Children, lockdown, social distancing, South Africa</td>
<td>19-May-20</td>
<td>What are we doing to the children of South Africa under the guise of COVID-19 lockdown?</td>
<td>The South African Medical Journal</td>
<td>Editorial</td>
<td>This editorial provides evidence that the welfare of South African children has been compromised by the country's lockdown in response to COVID-19. The authors warn of the consequences of not allowing mothers into pediatric wards, refusing to see or care for children if their COVID-19 status is unknown, and declining to provide essential health services, such as immunization. Reports exist of children being treated by pediatricians with empirical antibiotics, hydroxychloroquine and azithromycin, even for mild disease, although these are not recommended. The authors warn that cases of child malnutrition will increase as a result of school closures, and cases of measles, gastro-enteritis, and pneumonia will see a resurgence with the loss of vaccination programs.</td>
<td>This editorial argues that South Africa's lockdown in response to COVID-19 has compromised child welfare. In particular, they warn of adverse health outcomes due to inappropriate treatment of mild COVID-19 in children, loss of school-provided meals, and disruption vaccination services.</td>
<td>Van Bruwaene L, Mustafa F, Cloete J, et al. What are we doing to the children of South Africa under the guise of COVID-19 lockdown? [publish online, 2020 May 19]. S Afr Med J. 2020;110(7):574-575.</td>
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<td>Maternity, pregnancy, postpartum, intrapartum, neonatal, obstetrics, Taiwan</td>
<td>19-May-20</td>
<td>The maternity response to COVID-19: An example from one maternity unit in Taiwan</td>
<td>Midwifery</td>
<td>Commentary</td>
<td>As of the date of this article, Taiwan had a low number of COVID-19 infections, including no cases in pregnant or postpartum women. Early in the pandemic (January-February 2020), Taiwan activated their Central Epidemic Command Centre, meticulously implemented a national database tracking cases and travel, and ensured adequate facemask access to the public. This article documents the infection control actions of one hospital maternity unit of a hospital in Taipei. This hospital limits visitors, and requires all patients, visitors, and staff to be screened for COVID-19 symptoms and have identification checked. Symptomatic patients are tested for COVID-19, and are separated from infants until a negative result is received. No group education or external vendors are allowed on the unit, and environmental cleaning has increased. Postpartum women are instructed to self-isolate with their families. It is noted, though, that Chinese tradition has always included virtual self-isolation for postpartum women. The authors credit the practices of Taiwanese government and hospitals with curbing the incidence of COVID-19 infection in that nation.</td>
<td>This article documents the infection control actions of the Taiwanese government, and of a hospital maternity unit of a hospital in Taipei. The authors report that such policies are responsible for low rates of COVID-19 in Taiwan.</td>
<td>Liao SC, Chang YS, Chien LY. The maternity response to COVID-19: An example from one maternity unit in Taiwan. Midwifery. 2020;88:102756. doi:10.1016/j.midw.2020.102756</td>
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<td>Reproduction, fertility, assisted reproductive technology, reproductive rights, Spain</td>
<td>19-May-20</td>
<td>Infertility and reproductive rights after the COVID-19 pandemic</td>
<td>Reproductive Biomedicine Online</td>
<td>Viewpoint</td>
<td>The authors predict that the economic impact that will follow the pandemic will exert pressure on the desired family planning of couples and single women in Spain, postponing the ideal time of conception. This is based on data from Spain during an economic recession in 2008, during which a global financial crisis occurred, and the yearly growth rate of the Spanish population fell from 1.57% in 2007 to –0.33% in 2013, returning to equal the European population yearly growth rate of 1% in 2018. As female age is the most important independent variable of success at the time of conception, the authors propose that assisted reproductive technology (ART) may contribute to alleviating the impact that the economic recession might have on fertility, and that governments should investigate easing access to these techniques for couples or women who desire them.</td>
<td>The pandemic could impact the family planning of couples in Spain, and delays in childbearing could affect female fertility. The authors conclude that governments should consider reducing barriers to assisted reproductive technologies to alleviate the impact on fertility and preserve reproductive rights.</td>
<td>Trinchant RM, Cruz M, Marqueta J, Requena A. Infertility and reproductive rights after the COVID-19 pandemic. Reprod Biomed Online. 2020;41(2):151-153. doi:10.1016/j.rbmo.2020.05.007</td>
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<td>Abortion, nosocomial infection, hospital-based exposure, New York, pregnancy</td>
<td>19-May-20</td>
<td>A hospital-based COVID-19 abortion case in the early phase of the pandemic</td>
<td>Contraception</td>
<td>Case Report</td>
<td>This is a case report of a 33-year-old pregnant woman with Hemoglobin SS disease admitted on March 24 in New York at 13 weeks and 4 days gestation for vaso-occlusive crisis who ultimately sought hospital-based abortion services. An admission nasal swab test for COVID-19 was negative. A previous pregnancy had required weekly home blood transfusions, IV hydration, and extended inpatient admissions, and the patient was advised that she would need care similar prenatal care which would prove challenging during the pandemic. Risks included the potential for delays obtaining matched blood for transfusion given potential shortages of blood products and increased COVID-19 exposure for home-based care or hospitalization. The patient decided to proceed with surgical abortion. Dilation and evacuation were delayed for four days for blood matching and obtaining operating room committee approval (pandemic-specific) due to acute reductions in available staff. After the procedure, on day 13, the patient developed hypotension and a chest X-ray suggested pneumonia. A COVID-19 retest returned positive. Her hemodynamic status improved with treatment and she was discharged home on day 18. This case highlights the multiple challenges for providing hospital-based abortion care during the pandemic, including increased risk of nosocomial exposure to COVID-19.</td>
<td>The authors demonstrate the challenges the pandemic has posed for providing pregnancy and abortion care for women requiring hospital-based services, including the risk of possible nosocomial exposure to COVID-19.</td>
<td>Fang NZ, Castaño PM, Davis A. A hospital-based COVID-19 abortion case in the early phase of the pandemic. Contraception. 2020;102(2):137-138. doi:10.1016/j.contraception.2020.05.005</td>
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<td>Pregnancy, clinical trials</td>
<td>19-May-20</td>
<td>Exclusion of Pregnant Women From Clinical Trials During the Coronavirus Disease 2019 Pandemic: A Review of International Registries</td>
<td>American Journal of Perinatology</td>
<td>Original article</td>
<td>To assess the current state of research for pregnant women during the COVID-19 pandemic, the authors conducted a search of international trial registries for trials relating to the novel coronavirus. The eligibility criteria for each trial were reviewed for inclusion/exclusion of pregnant women. Among 621,370 trials in the World Health Organization International Clinical Trials Registry, 927 (0.15%) were COVID-19 related. Of those, the majority (52%) explicitly excluded pregnancy or failed to address pregnancy at all (46%) and only 16 (1.7%) were pregnancy specific. Of the COVID-19 trials which included pregnant women, three were randomized-controlled drug trials. Approximately 1.7% of current COVID-19 research is pregnancy related and the majority of trials either explicitly exclude or fail to address pregnancy. The knowledge gap concerning the safety and efficacy of interventions for COVID-19 created by the exclusion of pregnancy.</td>
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<td>Smith DD, Pippen JL, Adesomo AA, et al. Exclusion of Pregnant Women from Clinical Trials during the Coronavirus Disease 2019 Pandemic: A Review of International Registries [published online 2020 May 19]. Am J Perinatol. 2020;37(8):792-799. doi:10.1055/s-0040-1712103</td>
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<td>Pregnancy, obstetrical admission, academic vs. community hospitals, universal screening, PPE, USA</td>
<td>19-May-20</td>
<td>Community Obstetrical Units Less Likely Than Academic Units to Have Universal COVID-19 Testing</td>
<td>American Journal of Perinatology</td>
<td>Letter to the Editor</td>
<td>Differences in COVID-19 specific resources between academic and community hospital obstetric units could result in disparate disease transmission rates and care. In response to member concerns, the Society for Maternal-Fetal Medicine surveyed 56 maternal-fetal medicine physicians (n=35 from academic institutions, n=21 from community hospitals). In this small but geographically diverse sample (38 states and the District of Columbia), academic institutions and community hospitals had a similar volume of COVID-19 obstetric patients admitted per week (p=0.76). Universal testing varied within states and did not correlate with COVID-19 inpatient obstetrical volumes; 31% (5/16) of hospitals that admitted three or more COVID-19 affected patients per week were performing universal testing compared with 15% (6/40) of hospitals that admitted less than three COVID-19 affected patients per week (p=0.26). Universal testing rates differed significantly between hospital types with 29% (10/35) of academic-affiliated respondents reporting universal testing compared with 5% (1/21) of community hospitals (p=0.04). All respondents reported adequate access to surgical masks, 96% (54/56) reported using N95s for deliveries of COVID-19 affected patients and 25% (14/56) reported using N95s for all deliveries. Universal N95 masking at delivery did not differ significantly between academic and community hospitals (29% compared with 19%, p=0.53).</td>
<td>Findings from the reported survey show universal COVID-19 testing at the time of obstetrical admission is more common at academic than community hospitals and does not correlate with COVID-19 positive patient volume.</td>
<td>Werner EF, Louis JM, Hughes B, Han CS, Norton ME, Srinivas SK. Community Obstetrical Units Less Likely Than Academic Units to Have Universal COVID-19 Testing [published online 2020 May 19]. Am J Perinatol. doi:10.1055/s-0040-1712454</td>
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<td>Pregnancy, neonates, skin-to-skin contact, perinatal outcomes</td>
<td>19-May-20</td>
<td>Skin-to-Skin Care and COVID-19</td>
<td>Pediatrics</td>
<td>Perspectives</td>
<td>Current American Academy of Pediatrics (AAP) guidelines recommend physical separation of COVID-19 positive women from their infants following delivery, when space allows, unless they choose rooming-in despite being counseled on risk. On the other hand, the WHO’s recommendation encourages breastfeeding initiation within an hour of birth and routine newborn care with added emphasis on respiratory and hand hygiene. Neonates could be relatively protected from infection through transplacental maternal IgG, and breastfeeding has known immune benefits in other viral respiratory infections. The author argues that the benefits of postpartum skin-to-skin contact, bonding, and breastfeeding outweigh concerns about infection and the potential benefits of isolation. The most commonly reported perinatal outcomes in this pandemic, for example premature birth, could be mitigated through greater prenatal support for pregnant women through social services.</td>
<td>The author argues in favor of skin-to-skin contact and breastfeeding over recommendations to physical separate COVID-19 positive mothers and newborns.</td>
<td>Boscia C. Skin-to-Skin Care and COVID-19 [published online ahead of print, 2020 May 19]. Pediatrics. 2020. doi:10.1542/peds.2020-1836</td>
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<td>Children, vulnerable households, social distancing measures, cash transfer, basic services subsidy, Mexico</td>
<td>19-May-20</td>
<td>Costing of Actions to Safeguard Vulnerable Mexican Households With Young Children From the Consequences of COVID-19 Social Distancing</td>
<td>International Journal of Equity Health</td>
<td>Letter to the Editor</td>
<td>As the COVID-19 pandemic evolves, the social distancing measures that have been globally enforced, while essential, are having undesirable side effects among vulnerable populations. In Mexico, families who depend upon informal employment face increased threats to their wellbeing, and households who in addition have young children may face long-term consequences, such as major income reductions as well as food insecurity. The Mexican government has not yet taken actions, but a coalition of non-governmental organizations is advocating in partnership with academic institutions for social protection actions such as a cash transfer and basic services subsidies for families with young children. According to weighted estimates, 4,522,182 households would be eligible for the cash transfer and basic services subsidies, as calculated to support vulnerable families with young children, affected by social distancing measures during the pandemic, in Mexico.</td>
<td>Estimated costs of cash transfer and basic service subsidy interventions are calculated to support vulnerable families with young children, affected by social distancing measures during the pandemic, in Mexico.</td>
<td>Vilar-Compte M, Pérez V, Tereul G, Alonso A, Pérez-Escamilla R. Costing of actions to safeguard vulnerable Mexican households with young children from the consequences of COVID-19 social distancing measures. Int J Equity Health. 2020;19(1):70</td>
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<td>Infant, acute inflammation, myocarditis, IL-6, Italy</td>
<td>19-May-20</td>
<td>Acute Inflammation and Elevated Cardiac Markers in a Two-Month-Old Infant with Severe Acute Respiratory Syndrome Coronavirus 2 Infection Presenting with Cardiac Symptoms</td>
<td>The Pediatric Infectious Diseases Journal</td>
<td>Brief Report</td>
<td>In complicated cases of SARS-CoV-2 infection in children, it is unknown whether inflammation is predictive of disease severity, as in adults. This case reports a 2-month-old infant with RT-PCR confirmed SARS-CoV-2 infection presenting with fever, tachycardia and elevated interleukin(IL-6), which preceded the rise of procalcitonin, D-dimer, and the reduction of hemoglobin concentration; IL-6 elevation was otherwise concurrent with cardiac marker elevation preceding echocardiographic signs. The patient was diagnosed with myocarditis and showed good response to treatment with IV immunoglobulins. Possible mechanisms for cardiovascular complications in COVID-19 include direct acute myocardial injury, thrombotic events, microangiopathy and tachycardia; the enhanced systemic inflammatory response appears tightly related to all of these mechanisms.</td>
<td>This report presents a unique case of major heart injury in a pediatric patient, noting that elevation of IL-6 may be a possible early warning sign of relevance even in the youngest individuals with SARS-CoV-2 infection.</td>
<td>doi:10.1186/s12939-020-01187-3</td>
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<td>Infants, severe neutropenia, viral infections, Italy</td>
<td>19-May-20</td>
<td>Severe Neutropenia in Infants With Severe Acute Respiratory Syndrome Caused by the Novel Coronavirus 2019 Infection</td>
<td>The Journal of Pediatrics</td>
<td>Letter to the Editor</td>
<td>In a systematic review on laboratory data identified in 12 articles, with a total of 66 pediatric patients, lymphopenia was found in only 3% of children, whereas lymphopenia often is described in adult patients. Neutropenia was recorded in 6% of cases, but it was never less than 0.500 × 10^9/L in this population. In this article, two infants (39 days and 23 days) with mild COVID-19 and severe neutropenia are reported. At admission, leukocyte and neutrophil counts were normal, and nasopharyngeal swabs tested positive for SARS-CoV-2. On day 5, both developed severe neutropenia, with a nadir of 0.244 × 10^9/L neutrophils and 0.482 × 10^9/L neutrophils, respectively. This finding is noteworthy, because post-infectious transient neutropenia has been associated with many other viral infections in infancy, which might share pathogenic mechanisms.</td>
<td>This report describes two infants with isolated severe neutropenia, which has not been described in children with COVID-19 to date.</td>
<td>Venturini E, Palmas G, Montagnani C, et al. Severe neutropenia in infants with severe acute respiratory syndrome caused by the novel coronavirus 2019 infection [published online 2020 May 19]. J Pediatr. doi:10.1016/j.jpeds.2020.04.051</td>
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<td>Nutrition, inflammation, cytokine storm, immune function, nutrients</td>
<td>19-May-20</td>
<td>COVID-19: The Inflammation Link and the Role of Nutrition in Potential Mitigation</td>
<td>Nutrients</td>
<td>Review</td>
<td>Notably, there are several significant risk factors for severe COVID-19 infection. These include poor nutritional status and pre-existing noncommunicable diseases (NCDs) such as diabetes mellitus, chronic lung diseases, cardiovascular diseases, obesity, and various other diseases that render the patient immunocompromised. These diseases are characterized by systemic inflammation, which may be a common feature of these NCDs, affecting patient outcomes against COVID-19. This review discusses some of the anti-inflammatory therapies that are currently under investigation intended to dampen the cytokine storm of severe COVID-19 infections. Furthermore, nutritional status and the role of diet and lifestyle is considered, as it is known to affect patient outcomes in other severe infections and may play a role in COVID-19 infection. This review speculates the importance of nutrition as a mitigation strategy to support immune function amid the COVID-19 pandemic, identifying food groups and key nutrients of importance that may affect the outcomes of respiratory infections.</td>
<td>This review investigates the role of nutrition in mitigating the cytokine storm associated with COVID-19 and inflammation related to underlying comorbidities that affect outcomes of patients with COVID-19.</td>
<td>Zabekakis I, Lordan R, Norton C, Tsoupras A. COVID-19: The Inflammation Link and the Role of Nutrition in Potential Mitigation. Nutrients. 2020;12(5):E1466. Published 2020 May 19. doi:10.3390/nu12051466</td>
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<td>Pregnancy, vaginal delivery,</td>
<td>19-May-20</td>
<td>Severe COVID-19 in a pregnant patient admitted</td>
<td>International Journal of Brief Communication</td>
<td>A 35-year-old woman (34 weeks of gestation) was admitted with clear vaginal fluid discharge that had been ongoing for 3 hours. Spontaneous labor occurred later that day, and a healthy female neonate was delivered</td>
<td>This case study presents a pregnant woman from Wuhan, China who Yu Y, Fan C, Bian J, Shen Y. Severe COVID-19 in a pregnant patient admitted</td>
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<td>Neonatal, pulmonary insufficiency, China</td>
<td>19-May-20</td>
<td>The Relationship Between Status at Presentation and Outcomes Among Pregnant Women With COVID-19</td>
<td>American Journal of Perinatology</td>
<td>Original Article</td>
<td>In this retrospective cohort study of pregnant women with COVID-19, 81 patients were tested because of a positive screen (symptoms [n=60] or exposure only [n=21]) and 75 patients were universally tested (all asymptomatic). In total, there were 46 symptomatic women and 22 asymptomatic women (tested based on exposure only [n=12] or as part of universal screening [n=10]) with confirmed COVID-19. Of symptomatic women (n=46), 27.3% had preterm delivery and 26.1% needed respiratory support while none of the asymptomatic women (n=22) had preterm delivery or need of respiratory support (p=0.007 and 0.01, respectively). No neonatal infections were reported on day 0 of life in this study.</td>
<td>Symptomatic pregnant women have a higher rate of preterm delivery and need for respiratory support than asymptomatic pregnant women, in this study.</td>
<td>London V, McLaren R Jr, Atallah F, et al. The Relationship between Status at Presentation and Outcomes among Pregnant Women with COVID-19 [published online 2020 May 19]. Am J Perinatol. doi:10.1055/s-0040-1712164</td>
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<td>Pregnancy, asymptomatic, universal screening, Chicago, IL, USA</td>
<td>19-May-20</td>
<td>Clinical Implications of Universal Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Testing in Pregnancy</td>
<td>Obstetrics &amp; Gynecology</td>
<td>Research Letter</td>
<td>This prospective case series includes pregnant women admitted to Northwestern Memorial Hospital in Chicago, IL, USA between April 8 and 27, 2020. During this time, Chicago was in the acceleration phase of the pandemic. Over 20 days, 635 pregnant women were admitted and universally tested, and 23 (3.6%) were positive for SARS-CoV-2 infection. Of these, 10 (43.5% of 23) were asymptomatic on initial presentation. 21 (3.3% of 635) pregnant women who were admitted reported symptoms of COVID-19 infection. Of these, 13 (61.9% of 21) tested positive for SARS-CoV-2 infection. The 514 women who were asymptomatic, 10 (1.6%) tested positive for SARS-CoV-2. These findings corroborate previous observations that pregnant women with SARS-CoV-2 infection on admission do not seem to be reliably identified using symptom screening alone.</td>
<td>Using a universal screening strategy, this study from Chicago found a significant proportion of asymptomatic cases of SARS-CoV-2 infection among pregnant women admitted for delivery.</td>
<td>Miller ES, Grobman WA, Sakowicz A, Rosati J, Peaceman AM. Clinical Implications of Universal Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Testing in Pregnancy [published online 2020 May 19]. Obstet Gynecol. doi:10.1097/AOG.0000000000003983</td>
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<td>Pregnancy, asymptomatic vs. symptomatic, respiratory support, preterm delivery, New York, USA</td>
<td>19-May-20</td>
<td>Simulation-guided Preparations for the Management of Suspected or Confirmed COVID-19 Cases in the Obstetric Emergency Theater</td>
<td>Journal of Maternal Fetal and Neonatal Medicine</td>
<td>Short Report</td>
<td>The simulation training objective of this study was to enhance the neonatal, maternity, and anesthesiatics teams’ preparedness for the management of the emergency delivery of pregnant women with suspected or confirmed COVID-19 infection. Three one-hour clinical simulation training sessions were conducted in March 2020 at the University Hospital Plymouth, Plymouth, UK. Key recommendations from these sessions include: (1) floor plan adjustment, increase of the clinical area by converting some offices to clinical spaces, and standard operating procedures for transporting patients; (2) enhancement of the efficiency of the communication and coordination between the clinical teams; (3) availability of extra support for the staff in the Central Delivery Suite; and (4) introduction of a neonatal care pathway to manage neonatal resuscitation in such an emergency. Overall, joint training between different clinical teams involved in the care of COVID-19 patients was one of the most effective ways of improving performance.</td>
<td>This report presents suggestions made to a multidisciplinary team to enhance preparedness for the management of obstetric emergencies in pregnant women with suspected or confirmed COVID-19.</td>
<td>Muhsen WS, Marshall-Roberts R. Simulation-guided preparations for the management of suspected or confirmed COVID-19 cases in the obstetric emergency theater [published online 2020 May 19]. J Matern Fetal Neonatal Med. doi:10.1080/14767058.2020.1765333</td>
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<td>Pregnancy, clinical characteristics, urgent delivery, preterm delivery, neonatal infection, pregestational BMI, Italy</td>
<td>19-May-20</td>
<td>Clinical Findings and Disease Severity in Hospitalized Pregnant Women With Coronavirus Disease 2019 (COVID-19)</td>
<td>Obstetrics &amp; Gynecology</td>
<td>Original Research</td>
<td>This prospective multicenter cohort study includes 77 pregnant women with SARS-CoV-2 infection who were admitted to 12 Italian maternity hospitals between February 23 and March 28, 2020. Of 77 total women, 14 (18%) had severe disease. Two thirds of the patients in the cohort were admitted during the third trimester, and 84% were symptomatic on admission. Eleven patients underwent urgent delivery for respiratory compromise (16%), and six were admitted to the ICU (8%). One woman received extracorporeal membrane oxygenation; no deaths occurred. Preterm delivery occurred in 12% of patients, and nine newborns were admitted to the NICU. Four newborns (three vaginal deliveries, one cesarean delivery) of 57 were diagnosed with SARS-CoV-2 infection in the early postpartum period. For all newborns, rooming-in and breastfeeding were performed. Patients in the severe subgroup had significantly higher pregestational body mass indexes (BMIs) and heart and respiratory rates and a greater frequency of fever or dyspnea on admission compared with women with a non-severe disease evolution.</td>
<td>In this cohort, one in five women hospitalized with COVID-19 delivered urgently for respiratory compromise or were admitted to the ICU. Four newborns tested positive for SARS-CoV-2 infection; rooming-in and breastfeeding were performed.</td>
<td>Savasi VM, Parisi F, Patanè L, et al. Clinical Findings and Disease Severity in Hospitalized Pregnant Women With Coronavirus Disease 2019 (COVID-19) [published online 2020 May 19]. Obstet Gynecol. doi:10.1097/AOG.0000000000003979</td>
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<td>Neonatal infection, prematurity birth, ventilation, anal shedding, chest CT</td>
<td>19-May-20</td>
<td>Several Neonates Reported Positive for COVID-19</td>
<td>Infectious Diseases (London)</td>
<td>Letter to the Editor</td>
<td>After a search of databases provided by PubMed and EMBASE, 13 unique neonates with COVID-19 were identified. Ten mothers in this series were confirmed to be COVID-19 positive and the other three had respiratory symptoms but were not tested. Two neonates needed ventilation for COVID-19 unrelated etiology. Both were born premature and whereas one had respiratory distress syndrome and sepsis, the other had respiratory depression from maternal sedation. Symptoms were transient and not severe in other neonates, the most common being fever, lethargy, vomiting, tachypnea and cough. Diagnosis of COVID-19 infection was made on Day 1–27 of life, testing positive for viral nucleic acid. While cessation of viral presence from the pharyngeal specimens was confirmed in 6 neonates within a week, 2 neonates were found to have persistent anal shedding lasting up to 17 days after initial infection. Seven neonates had abnormalities on chest radiogram, which appeared out of proportion to the clinical features, thus radiologic findings should not be a basis for intervention by itself.</td>
<td>This review describes the clinical characteristics and benign course of infection of 13 neonates with SARS-CoV-2 infection, born to COVID-19 positive mothers.</td>
<td>Jones J, Jones S, Jones V. Several neonates reported positive for COVID-19 [published online 2020 May 19]. Infect Dis (Lond). doi:10.1080/23744235.2020.1762920</td>
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<td>Pregnancy, maternal-fetal outcomes, systematic review, meta-analysis</td>
<td>19-May-20</td>
<td>COVID-19 Pneumonia and Pregnancy: A Systematic Review and Meta-Analysis</td>
<td>Journal of Maternal Fetal and Neonatal Medicine</td>
<td>Original Article</td>
<td>Nine articles on COVID-19 pneumonia and pregnant women were extracted. The present meta-analysis was conducted on 87 SARS-CoV-2 positive pregnant women. Almost 65% of patients reported a history of exposure to an infected person, and 78% suffered from mild or moderate COVID-19. With regard to clinical characteristics, 86% had fever, and 68% and 70% had cough and lymphopenia, respectively (p=.022). The overall proportion of successful termination (i.e. delivery) was estimated to be 99.9% (p&lt;.001). The proportions of vertical transmission, still birth, and neonatal death were 0%, 0.2%, and, 0.2%, respectively (p=1, p=.86, and p=.89, respectively). The means of the first- and fifth-minute Apgar scores were 8.86 and 9, respectively (p&lt;.001 for both). The confounding role of history of underlying diseases with an estimated overall proportion of 33% (p=.03) resulted in further investigations due to sample size limitation. Currently, no evidence of vertical transmission has been suggested in late pregnancy. No hazards have been detected for fetuses or neonates. Most pregnant patients</td>
<td>This meta-analysis concludes that there is no evidence of vertical transmission in late pregnancy, and no hazards for neonates born to SARS-CoV-2 positive women.</td>
<td>Kasraeinian M, Zare M, Vafaee H, et al. COVID-19 pneumonia and pregnancy; a systematic review and meta-analysis [published online 2020 May 19]. J Matern Fetal Neonatal Med. doi:10.1080/14767058.2020.1763952</td>
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<td>Pregnancy, preterm delivery, rupture of membranes, antenatal corticosteroids, decision analysis</td>
<td>19-May-20</td>
<td>Antenatal Corticosteroids for Pregnant Women With COVID-19 Infection and Preterm Prelabor Rupture of Membranes: A Decision Analysis</td>
<td>Journal of Maternal Fetal and Neonatal Medicine</td>
<td>Original Article</td>
<td>While antenatal corticosteroids are routinely used to decrease adverse neonatal outcomes following preterm delivery, corticosteroids are also associated with worse outcomes in patients with viral respiratory infections. It is unclear whether antenatal corticosteroids for infant benefit outweigh the potential harm to a pregnant woman with a COVID-19 infection. In the decision-analytic model designed in this study, among a theoretical cohort of 10,000 women, with COVID-19 infection and preterm pre-labor rupture of membrane (PPROM) between 24 and 32 weeks, corticosteroid administration resulted in 2,200 women admitted to the ICU and 110 maternal deaths at each gestational age. No antenatal corticosteroid use resulted in 1,500 ICU admissions and 75 maternal deaths at each gestational age. Antenatal corticosteroid administration also resulted in fewer cases of respiratory distress syndrome, intraventricular hemorrhage, and infant death. Overall, the authors found that between 24 and 30 weeks of gestation, administering antenatal corticosteroids was the optimal management strategy as it resulted in higher combined maternal and neonatal quality-adjusted life years (QALYs), than no corticosteroid use. For 31 and 32 weeks of gestation, antenatal corticosteroid administration resulted in lower combined QALYs. On sensitivity analyses, the probability of antenatal corticosteroids being the optimal management strategy decreased with increasing gestational age.</td>
<td>Findings from this decision-analytic model found that administration of antenatal corticosteroids, for hospitalized women with preterm pre-labor rupture of membranes and COVID-19, was an effective management strategy compared to no corticosteroid administration at gestational ages less than 31 weeks.</td>
<td>Zhou CG, Packer CH, Hersh AR, Caughley AB. Antenatal corticosteroids for pregnant women with COVID-19 infection and preterm prelabor rupture of membranes: a decision analysis [published online 2020 May 19]. J Matern Fetal Neonat Med. doi:10.1080/14767058.2020.1763951</td>
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<p>| Pregnancy, neonates, perinatal outcomes, vertical transmission, breast milk samples, systematic review | 19-May-20 | Effects of Coronavirus Disease 2019 (COVID-19) on Maternal, Perinatal and Neonatal Outcomes: A Systematic Review | Ultrasound Obstetrics and Gynecology | Systematic Review | A systematic review, conducted until April 20, 2020, identified a high number of case reports and case series on COVID-19 in pregnancy, but only 24 studies including a total of 324 pregnant women with COVID-19 were included. These comprised 8 consecutive case series, 1 non-consecutive case series, and 15 case reports. In the combined data from the 8 consecutive case series, which included 211/295 (71.5%) cases of laboratory-confirmed and 84/295 (28.5%) cases of clinically diagnosed COVID-19, the maternal age ranged from 20 to 44 years and the gestational age on admission ranged from 5 to 41 weeks. The most common symptoms at presentation were fever, cough, dyspnea/shortness of breath, fatigue and myalgia. The rate of severe pneumonia reported amongst the case series ranged from 0 to 14%, with the majority of cases requiring ICU admission. Almost all cases from the case series had positive chest CT findings. The 6 and 22 cases that had nucleic-acid testing in vaginal mucus and breast milk samples, respectively, were negative for SARS-CoV-2. Only 4 cases of spontaneous miscarriage or abortion were reported. 219/295 women had delivered at the time of reporting (range 28-41 gestational weeks), and the majority of these had Cesarean section. Apgar scores at 1 and 5 min ranged from 7 to 10 and 7 to 10, respectively. Only 8 neonates had birth weight &lt;2500g, and nearly one-third of cases were transferred to the NICU. There was 1 case each of neonatal asphyxia and neonatal death. In 155 neonates that had nucleic-acid testing in throat swabs, all but 3 cases were negative for SARS-CoV-2. In the non-consecutive case series, describing 9 cases of severe COVID-19, there | Despite the increasing number of published studies on COVID-19 in pregnancy, there are insufficient good-quality data to draw unbiased conclusions with regard to the severity of the disease or specific complications of COVID-19 in pregnant women, as well as vertical transmission, perinatal and neonatal complications. | Juan J, Gil MM, Rong Z, Zhang Y, Yang H, Poon LC. Effects of coronavirus disease 2019 (COVID-19) on maternal, perinatal and neonatal outcomes: a systematic review [published online 2020 May 19]. Ultrasound Obstet Gynecol. doi:10.1002/uog.22088 |
| Key Terms                                                                 | Date Published | Title                                                                 | Journal / Source                | Type of Publication | Specific Observations                                                                                                                                                                                                 | Full Citation                                                                                                                                                                                                 |
|--------------------------------------------------------------------------|---------------|----------------------------------------------------------------------|--------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| Pregnancy, knowledge, attitudes, concerns, breastfeeding safety, Turkey  | 19-May-20 | Near-term Pregnant Women’s Attitude Toward, Concern About and Knowledge of the COVID-19 Pandemic | Journal of Maternal Fetal and Neonatal Medicine | Original Article  | This cross-sectional survey presents analysis of prospectively collected data, at a single tertiary “Coronavirus Pandemic Hospital” referral center in Turkey, from non-SARS-CoV-2 infected women with a confirmed pregnancy (&gt;30 weeks’ gestation). A total of 172 pregnant women (mean age 27.5 ± 5.3 years) were included. Overall, four women refused to participate to the survey (1.9%). Median gestational week and parity were 35 ± 11 weeks and 1 ± 2, respectively. Pregnant women were observed to trust the authorities (65%) and healthcare staff (92.4%), and their respect was increased (82.5%) during the outbreak. Most women (87.2%) comply with self-quarantine rules. Half of the women (52%) reported that they felt vulnerable, and 80% felt concerned. Approximately one-third of the women reported constantly thinking that they might get infected (35.5%) or they might get infected during/following delivery or their newborn might get-infected after being born (42%). Half of the women (50%) reported that they either had no idea about or thought that breastfeeding was not safe during the outbreak. About 45% of women were confused or had doubts about whether or not the COVID-19 pandemic would affect their mode of delivery. The majority of women did not know if COVID-19 might cause birth defects (76%) or preterm birth (64.5%). These findings may guide health care providers in developing targeted messages to provide information to pregnant women. | Yassa M, Birol P, Yirimbes C, et al. Near-term pregnant women’s attitude toward, concern about and knowledge of the COVID-19 pandemic [published online 2020 May 19]. J Matern Fetal Neonatal Med. doi:10.1080/14767058.2020.1763947 |
| Preterm infant, ARDS, host inflammatory response, remdesivir, horizontal transmission, UK | 19-May-20 | Horizontal transmission of severe acute respiratory syndrome coronavirus 2 to a premature infant: multiple organ injury and association with | The Lancet Child &amp; Adolescent Health | Case Report    | A male infant, born at 27 weeks’ gestation, presented to the emergency department (ED) at 8 weeks of age with a 2-day history of poor feeding, sneezing, and dyspnea. 10 days before presentation, the infant had been discharged from the neonatal unit after recovering from neonatal respiratory distress syndrome; he had been fed with maternal expressed breast milk from day 3 of life. There were no cases of COVID-19 on the neonatal unit before or following discharge, members of the infant’s household (parents and a 4-year-old sibling) were asymptomatic, and there were no other reported contacts. On initial assessment in the ED, the infant was in respiratory failure and presumed septic shock; resuscitation and respiratory support were commenced. Quantitative RT-PCR showed that the | Cook J, Harman K, Zoica B, et al. Horizontal transmission of severe acute respiratory syndrome coronavirus 2 to a premature infant: multiple organ injury and association with markers of inflammation [published online 2020 May 19]. Lancet Child &amp; Adolesc Health. |</p>
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<th>Summary &amp; Key Points</th>
<th>Specific Observations</th>
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<td>Children, gastrointestinal symptoms, appendicitis, UK</td>
<td>19-May-20</td>
<td>Gastrointestinal features in children with COVID-19: an observation of varied presentation in eight children</td>
<td>The Lancet Child &amp; Adolescent Health</td>
<td>Correspondence</td>
<td>This report describes eight children with COVID-19 presenting at a single center in the UK with symptoms of atypical appendicitis (fever, abdominal pain, diarrhea, vomiting) before rapid deterioration requiring hospitalization and, in some cases, intensive care support. All children had imaging confirming terminal ileitis. In two cases, plans for operative intervention were abandoned due to hemodynamic instability, need for intensive care, or positive SARS-CoV-2 PCR. All but two patients are receiving ongoing inpatient care, and their outcomes are unknown; no patients have died.</td>
<td>The authors draw attention to an unusual presentation of COVID-19 in children, recommending both abdominal imaging and SARS-CoV-2 PCR testing when investigating for possible appendicitis in children with abdominal symptoms.</td>
<td>Tullie L, Ford K, Bisharat M, et al. Gastrointestinal features in children with COVID-19: an observation of varied presentation in eight children [published online 2020 May 19]. Lancet Child &amp; Adolesc Health. doi:10.1016/S2352-4642(20)30165-6</td>
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<td>Adolescents, septic shock, peritonitis, multisystem inflammatory syndrome, obesity, Geneva, Switzerland</td>
<td>19-May-20</td>
<td>Septic shock presentation in adolescents with COVID-19</td>
<td>The Lancet Child &amp; Adolescent Health</td>
<td>Correspondence</td>
<td>By April 30, 1199 PCR tests (on various types of samples) for SARS-CoV-2 had been performed in children in Geneva, Switzerland, and 57 children had positive results. This report describes the clinical characteristics of three adolescents (10–12 years) with confirmed SARS-CoV-2 infection, who presented with septic shock, defined as a severe infection leading to cardiovascular dysfunction; two had signs of peritonitis and multiple organ dysfunction syndrome and met the definition for pediatric multisystem inflammatory syndrome temporally associated with COVID-19. Despite the fact that 35–50% of children in sepsis and septic shock have no infectious organism found, the temporality of these patients’ presentations and their SARS-CoV-2 positive testing strongly indicate causality. Of note, all three patients had a body-mass index greater than the 97th percentile for age, raising the question of obesity as a risk factor for severe disease, as reported in adult studies. No deaths were reported.</td>
<td>This case series describes the presentation of septic shock in 3 adolescents with COVID-19 in Geneva, Switzerland; two met criteria for the pediatric multisystem inflammatory syndrome temporally associated with COVID-19.</td>
<td>Dallan C, Romano F, Siebert J, et al. Septic shock presentation in adolescents with COVID-19 [published online 2020 May 19]. Lancet Child &amp; Adolesc Health. doi:10.1016/S2352-4642(20)30164-4</td>
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<td>BCG vaccination, country-wise outbreaks, growth curve, cases and deaths</td>
<td>19-May-20</td>
<td>Mandated Bacillus Calmette-Guérin (BCG) vaccination predicts flattened curves</td>
<td>medRxiv</td>
<td>Preprint (not peer reviewed)</td>
<td>BCG vaccination may reduce the risk of a range of infectious diseases, and, if so, could serve as a protective factor against COVID-19. The authors of this study compared countries that mandated BCG vaccination, at least until 2000, with countries that did not (129 countries in total). To minimize any systematic effects of reporting biases, the rates of day-by-day increase in both confirmed COVID-19 cases and deaths in the first 30-day period of country-wise outbreaks were analyzed. The 30-day window was adjusted to begin at the country-wide onset of the pandemic. Linear mixed models in this revision of an earlier preprint, the authors strengthen their analysis of the effect of mandated BCG vaccination on the growth curve of COVID-19 cases and deaths in</td>
<td>In this revision of an earlier preprint, the authors strengthen their analysis of the effect of mandated BCG vaccination on the growth curve of COVID-19 cases and deaths in</td>
<td>Berg MK, Yu Q, Salvador CE, et al. Mandated Bacillus Calmette-Guérin (BCG) vaccination predicts flattened curves for the spread of COVID-19 [published online 2020 May 19]. medRxiv.</td>
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<td>Pregnancy, neonatal infection, cesarean delivery, vertical transmission, systematic review</td>
<td>18-May-20</td>
<td>Vertical transmission of coronavirus disease 2019; severe acute respiratory syndrome coronavirus 2 RNA on the fetal side of the placenta in pregnancies with coronavirus disease 2019–positive mothers and neonates at birth</td>
<td>American Journal of Obstetrics &amp; Gynecology MFM</td>
<td>Research Letter</td>
<td>Vertical transmission of SARS-CoV-2 is still a controversial issue and studies on transplacental transmission correlations are limited. This study included 22 pregnant women who received a diagnosis of COVID-19 in their third trimester of pregnancy and delivered at the Papa Giovanni XXIII Hospital in Bergamo, Italy, between March 5 - April 21, 2020. Nasopharyngeal (NP) swabs from each mother and newborn were analyzed via RT-PCR, along with placental biopsy samples. Of the 22 neonates born from COVID-19–positive mothers, 2 tested positive (9%); both placental samples had SARS-CoV-2 RNA in the syncytiotrophoblasts signifying the presence of the virus on the fetal side of the placenta (the authors provide images of these placental samples alongside control samples for reference). The first neonate was delivered vaginally and stayed in the mother’s room while the mother wore a surgical mask. Skin-to-skin contact was not allowed, except for breastfeeding. The second neonate was delivered via C-section, immediately separated from the mother, and placed in the neonatal-ICU. No complications were observed for either cases. These findings support the possibility of vertical transmission of SARS-CoV-2 from mother to fetus in utero.</td>
<td>To determine the possibility of vertical transmission, this study included 22 pregnant women who received a diagnosis of COVID-19 in their third trimester of pregnancy and delivered in Bergamo (Italy). SARS-CoV-2 RNA was found in NP swabs of 2 neonates and in the fetal side of placental samples from their mothers, indicating the possibility of vertical transmission from mother to fetus in utero.</td>
<td>Patanè L, Morotti D, Giunta MR, et al. Vertical transmission of coronavirus disease 2019: severe acute respiratory syndrome coronavirus 2 RNA on the fetal side of the placenta in pregnancies with coronavirus disease 2019–positive mothers and neonates at birth [published online 2020 May 18]. Am J Obstet Gynecol MFM. 2020;2(3):100145. doi:10.1016/j.ajogmf.2020.100145.</td>
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<td>Child, pulmonary contusion, pneumonia, chest CT, imaging</td>
<td>18-May-20</td>
<td>COVID-19 Pneumonia Misdiagnosed as Pulmonary Contusion in a Child</td>
<td>British Journal of Hospital Medicine</td>
<td>Images in Medicine</td>
<td>Imaging findings are presented from a pediatric case of a 7-year-old boy who was admitted to the emergency department (ED) after a fall from 2m. Physical examination revealed upper back pain, and laboratory tests revealed elevated levels of C-reactive protein. Chest CT demonstrated peripheral, multilobar areas of ground-glass opacities. Physicians in the ED interpreted the CT findings as showing pulmonary contusion because of the history of trauma. However, consultation with the radiology department pointed to interpretation of CT features as those of COVID-19 pneumonia. A Pulmonary contusion and COVID-19 pneumonia presented with similar features on chest CT in this pediatric case.</td>
<td>Bekci T, Aslan S, Cakir IM. COVID-19 pneumonia misdiagnosed as pulmonary contusion in a child. Br J Hosp Med (Lond). 2020;81(5):1. doi:10.12968/hmed.2020.0224</td>
<td><a href="https://doi.org/10.1016/j.bjhm.2020.02.004">doi:10.1016/j.bjhm.2020.02.004</a></td>
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<td>Pregnancy, transmission, preterm birth, neonates</td>
<td>18-May-20</td>
<td>Intubation Precautions in a Pediatric Patient With Severe COVID-19</td>
<td>Journal of Pediatric Surgery Case Reports</td>
<td>Case Report</td>
<td>In this case, a 3-year-old male presented for biventricular repair in the setting of persistent cyanosis after multiple palliative cardiac interventions. Early post-extubation hypoxia was managed with Bilevel Positive Airway Pressure. Nasopharyngeal swab for respiratory virus PCR panel including SARS-CoV-2 resulted positive. Complete heart block requiring synchronized ventricular pacing persisted, so permanent pacemaker placement was scheduled on post-operative day (POD) 11. Throughout the case, the patient received inotropic support and remained hemodynamically stable with adequate respiratory gas exchange. He was discharged on POD 19. The utility of preoperative COVID-19 testing, determination of recovery by an array of inflammatory markers and perioperative management are also described in this report. Considerations include procedure timing, personal protective equipment, pre-emptive planning, and simulation to ensure the best procedural outcome for patient while minimizing aerosolization and exposure to healthcare workers.</td>
<td>The process of timing of surgical intervention for a child with severe COVID-19 is described in this report.</td>
<td>Shaw R, Tighe N, Odegard KC, et al. Intubation precautions in a pediatric patient with severe COVID-19 [published online 2020 May 18]. J Ped Surg Case Rep. doi:10.1016/j.epsc.2020.101495</td>
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<td>Pregnancy, neonates, preterm birth, laboratory markers, vertical transmission, meta-analysis</td>
<td>18-May-20</td>
<td>Chest CT Imaging Characteristics of COVID-19 Pneumonia in Preschool Children: A Retrospective Study</td>
<td>BMC Pediatrics</td>
<td>Research Article</td>
<td>From January 26 to February 20, 2020, the clinical and initial chest CT imaging data of eight preschool children with laboratory-confirmed COVID-19 from two hospitals were retrospectively collected. Two cases (25%) were classified as mild and showed no obvious abnormal CT findings or minimal pleural thickening on the right side. Five cases (62.5%) were classified as moderate. Among these patients, one case showed consolidation located in the subpleural region of the right upper lobe, with thickening in the adjacent pleura; one case showed multiple consolidation and ground-glass opacities with blurry margins; one case displayed bronchial pneumonia-like changes in the left upper lobe; and two cases displayed asthmatic bronchitis-like changes. One case (12.5%) was classified as critical and showed bronchial pneumonia-like changes in the bilateral lungs, presenting blurred and messy bilateral lung markings and multiple patchy shadows scattered along the lung markings with blurry margins.</td>
<td>The chest CT findings of COVID-19 in preschool children are atypical and various. Accurate diagnosis requires a comprehensive evaluation of epidemiological, clinical, laboratory and CT imaging data.</td>
<td>Li Y, Cao J, Zhang X, Liu G, Wu X, Wu B. Chest CT imaging characteristics of COVID-19 pneumonia in preschool children: a retrospective study. BMC Pediatr. 2020;20(1):227. doi:10.1186/s12887-020-02140-7</td>
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<td>Pregnancy, obesity, preterm birth,</td>
<td>18-May-20</td>
<td>Clinical manifestations and perinatal outcomes of pregnant women with COVID-19: a systematic review and meta-analysis</td>
<td>Nature Research</td>
<td>Preprint (not peer reviewed)</td>
<td>This systematic review and meta-analysis aimed to evaluate the impact of COVID-19 on pregnant women. Nine studies involving 93 pregnant women with COVID-19 and 103 infants were included in the meta-analysis. Pregnant women with COVID-19 have relatively mild symptoms. However, abnormal proportions of laboratory parameters were similar or even increased, compared to general population. Approximately 75%, 50% and 25% of infected pregnant women had elevated C-reactive protein, lymphopenia and leukocytosis, respectively. Around 30% of pregnant women with COVID-19 experienced preterm delivery, and the mean birth weight was 2147.7. Fetal death, severe neonatal asphyxia, and detection of SARS-CoV-2 were observed in about 2%, whereas no neonatal death was found.</td>
<td>This meta-analysis found generally mild symptoms in pregnant patients with COVID-19 but abnormal laboratory markers, compared to the general population; preterm delivery occurred in 30% of births, and SARS-CoV-2 was detected in 2% of neonates.</td>
<td>Yee J, Kim W, Han JM, et al. Clinical manifestations and perinatal outcomes of pregnant women with COVID-19: a systematic review and meta-analysis [published online 2020 May 19]. doi:10.21203/rs.3.rs-29550/v1</td>
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<td>Pregnancy, obesity, preterm birth,</td>
<td>18-May-20</td>
<td>Clinical Characteristics of 46 Pregnant</td>
<td>American Journal of Obstetrics &amp; Gynecology</td>
<td>Original Research</td>
<td>A retrospective study of pregnant patients with SARS-CoV-2 infection was conducted at six hospital systems in Washington State between January 21, 2020 and April 17, 2020. A total of 46 pregnant patients with SARS-CoV-2</td>
<td>In this study, nearly 15% of pregnant patients developed</td>
<td>Lokken EM, Walker CL, Delaney S, et al. Clinical Characteristics of 46</td>
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<td>respiratory insufficiency, fetal death, maternal morbidity, Washington State, USA</td>
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<td>Women With a SARS-CoV-2 Infection in Washington State</td>
<td>Obstetrics &amp; Gynecology</td>
<td>Review</td>
<td>were identified from hospital systems, capturing 40% of births in Washington State. Nearly all pregnant individuals with SARS-CoV-2 infection were symptomatic (93.5%, n=43) and the majority were in their second or third trimester (43.5%, n=20 and 50.0%, n=23, respectively). Symptoms resolved in a median of 24 days (IQR 13-37). Seven women were hospitalized (16%) including one admitted to the intensive care unit. Six cases (15%) were categorized as severe COVID-19 disease with nearly all patients being either overweight or obese prior to pregnancy, having asthma or other co-morbidities. Eight deliveries occurred during the study period, including a preterm birth at 33 weeks to improve pulmonary status in a woman with Class III obesity. One stillbirth occurred of unknown etiology. Obesity and COVID-19 may synergistically increase risk for a medically indicated preterm birth to improve maternal pulmonary status in late pregnancy.</td>
<td>severe COVID-19, which occurred primarily in overweight or obese women with underlying conditions.</td>
<td>Pregnant Women with a SARS-CoV-2 Infection in Washington State [published online 2020 May 18]. Am J Obstet Gynecol. doi:10.1016/j.ajog.2020.05.031</td>
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<td>Pregnancy, neonates, perinatal society, breastfeeding, guidelines</td>
<td>18-May-20</td>
<td>SARS-CoV-2 in Pregnancy: A Comprehensive Summary of Current Guidelines</td>
<td>Journal of Clinical Medicine</td>
<td>Review</td>
<td>International perinatal societies and institutions have released guidelines for the care of pregnant patients and their fetuses with COVID-19. This review summarizes these current guidelines in a comprehensive review for patients, healthcare workers, and healthcare institutions. 15 papers from 10 societies, through a literature search of society websites and their journal publications, were included up until April 20, 2020. Recommendations specific to antepartum, intrapartum, and postpartum care were abstracted from the publications and summarized in Tables. The summary of guidelines for the management of COVID-19 in pregnancy across different societies is fairly consistent, with some variation in the strength of recommendations. Currently, there is no definitive evidence to suggest vertical transmission of SARS-CoV-2, thus rooming-in and breastfeeding are still encouraged, unless the mother is acutely ill.</td>
<td>Recommendations for the care of pregnant patients and newborns with COVID-19 are summarized from 10 international perinatal societies.</td>
<td>Narang K, Ibirogba ER, Elrefaei A, et al. SARS-CoV-2 in Pregnancy: A Comprehensive Summary of Current Guidelines. J Clin Med. 2020;9(5):E1521. doi:10.3390/jcm9051521</td>
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<td>Children, early childhood development, mitigation, policy actions</td>
<td>18-May-20</td>
<td>Effects of the Global COVID-19 Pandemic on Early Childhood Development: Short-And Long-Term Risks and Mitigating Program and Policy Actions</td>
<td>The Journal of Pediatrics</td>
<td>Commentary</td>
<td>Research on the effects of priority pandemics and disasters clearly indicates that there will be both immediate and long-term adverse consequences of the COVID-19 pandemic for many children, with particular risks faced during early childhood (prenatal to 8 years of age). In the short-term, illness, hospitalization, separation, and loss of caregivers have immediate harmful effects on young children’s health, nutrition, wellbeing, and learning. Deteriorating economic circumstances will further exacerbate immediate risks and are compounded by the stress experienced by caregivers, undermining their ability to provide consistent nurturing care. In the long-term, studies have demonstrated reduced educational attainment and lifelong earnings as well as increased likelihood of non-communicable diseases and mental health problems depending on the timing of in utero exposure to disasters. Enduring economic downturn will lead to increased childhood poverty that may span all of the early childhood years or beyond. This report also presents evidence-based mitigating program and policy actions that may reduce the risks discussed.</td>
<td>This report reviews evidence on short- and long-term risks of the COVID-19 pandemic for children during early childhood development, as well as mitigation strategies to reduce these risks.</td>
<td>Yoshikawa H, Wuermli AJ, Britto PR, et al. Effects of the Global COVID-19 Pandemic on Early Childhood Development: Short- and Long-Term Risks and Mitigating Program and Policy Actions [published online 2020 May 18]. J Pediatr. doi:10.1016/j.jpeds.2020.05.020</td>
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<td>Children, infants, neonates, clinical characteristics</td>
<td>18-May-20</td>
<td>Clinical Characteristics of COVID-19 Infection in Newborns and Infants</td>
<td>Archives of Academic Emergency Medicine</td>
<td>Systematic Review</td>
<td>In this systematic review, medical databases were searched using English and Persian keywords including COVID-19, Pediatrics, Newborn, Coronavirus 2019, 2019-nCoV, SARS-CoV-2. In 14 related articles identified, a total of 2228 children, newborns and infants were studied. Most children were infected with COVID-19 due to family cluster or history of close contact.</td>
<td>This systematic review of 2228 children, infants, and newborns found evidence of mild Panahi L, Amiri M, Pouy S. Clinical Characteristics of COVID-19 Infection in Newborns and Pediatrics: A Systematic Review. Arch</td>
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<td>Pediatrics: A Systematic Review</td>
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<td>Clinical manifestation in children may be mild (72%), moderate (22%) or severe (6%), and the most common symptoms include dry cough (91%) and fever (96%). According to the included articles, two children had died, including a 14-year-old boy, whose exposure history and underlying disease were unclear, and a male newborn with gestational age of 35 weeks and 5 days, whose first symptom was increased heart rate. No differences were found between male and female children regarding SARS-CoV-2 infection.</td>
<td>clinical symptoms, with only 2 deaths reported.</td>
<td>Acad Emerg Med. 2020;8(1):e50. Published 2020 Apr 18.</td>
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<tr>
<td>Pregnancy, antibody testing, IgM, IgG, screening algorithm, Italy</td>
<td>18-May-20</td>
<td>COVID-19 Antibody Testing in Pregnancy</td>
<td>American Journal of Obstetrics &amp; Gynecology MFM</td>
<td>COVID-19 Pregnancy Research</td>
<td>Almost all patients with COVID-19 test positive for antiviral immunoglobulin-G (IgG) within 10-20 days after symptom onset, but the clinical value of antibody testing has not yet been elucidated in pregnant patients. The most common methods of SARS-CoV-2 antibody testing include: IgM and IgG titer measured by either chemiluminescence immunosorbent assay, or enzyme-linked immunosorbent assay (ELISA); and a rapid IgM-IgG combined antibody test. Testing pregnant women for antibody response may have advantages, including identifying convalescent (IgG positive) women who were never tested with RT-PCR assay of nasopharyngeal swab specimens, and identifying women still at risk for infection (IgM and IgG negative). In particular, the point-of-care rapid combined antibody test can serve an important role in obstetric healthcare settings. The authors present an algorithm for using antibody testing to screen pregnant women in both inpatient and outpatient settings.</td>
<td>The authors explain available methods of SARS-CoV-2 antibody testing and propose the use of point-of-care rapid combined antibody tests to universally screen pregnant women at hospital admission.</td>
<td>Zullo F, Di Mascio D, Saccone G. COVID-19 Antibody Testing in Pregnancy [published online 2020 May 18]. Am J Obstet Gynecol. doi:10.1016/j.ajogmf.2020.1531152</td>
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<tr>
<td>Pregnancy, neonatal infection, placental pathology, chronic intervillositis, RNA ISH assay, syncytiotrophoblast, Italy</td>
<td>18-May-20</td>
<td>Vertical Transmission of COVID-19: SARS-CoV-2 RNA on the Fetal Side of the Placenta in Pregnancies With COVID-19 Positive Mothers and Neonates at Birth</td>
<td>American Journal of Obstetrics and Gynecology MFM</td>
<td>COVID-19 Pregnancy Research</td>
<td>All pregnant women diagnosed with COVID-19 who delivered at Papa Giovanni XXIII Hospital in Bergamo, Italy between March 5 and April 21, 2020 were included in this study on placental SARS-CoV-2 markers of infection in the third trimester of pregnancy. Of 22 total women, two delivered neonates with SARS-CoV-2 positive nasopharyngeal swabs. Their placentas showed chronic intervillositis, with CD68+ macrophage infiltration, both in the intervillous and villous space. The RNA in situ hybridization (ISH) assay allowed direct visualization of the virus in the placentas by detecting SARS-CoV-2 spike protein mRNA while retaining tissue morphology. The RNAscope probe detected positive staining for SARS-CoV-2 viral RNA in the infected tissues but not in uninfected placenta controls, demonstrating the specificity of RNAscope probes. The presence of SARS-CoV-2 RNA in the syncytiotrophoblast signifies presence of the virus on the fetal side.</td>
<td>This is the first study describing SARS-CoV-2 RNA on the fetal side of the placenta in two cases of mother-newborn dyads who were positive for the virus at birth. These findings support the possibility of vertical transmission of SARS-CoV-2 in utero.</td>
<td>Patanè L, Morotti D, Giunta MR, et al. Vertical transmission of COVID-19: SARS-CoV-2 RNA on the fetal side of the placenta in pregnancies with COVID-19 positive mothers and neonates at birth [published online 2020 May 18]. Am J Obstet Gynecol MFM. doi:10.1016/j.ajogmf.2020.100145</td>
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<td>Pregnancy, neonates, maternal-fetal transmission, maternal viremia, cellular tropism, transplacental passage</td>
<td>18-May-20</td>
<td>Evidence and Possible Mechanisms of Rare Maternal-Fetal Transmission of SARS-CoV-2</td>
<td>Journal of Clinical Virology</td>
<td>Review</td>
<td>Data remains scarce about the natural history of SARS-CoV-2 infection in pregnant women and the risk of mother-to-fetal transmission. Different mechanisms of viral infection and vertical transmission in placenta include placental tropism and replication, transcytosis of opsonized or free virus, or virus carried by an infected blood cell. However, current data indicate that viral RNA levels in maternal blood are low, and there is no evidence of placental infection with SARS-CoV-2. Published reports to date suggest that perinatal transmission of SARS-CoV-2 can occur but is rare. Among 179 newborns tested for SARS-CoV2 at birth from mothers with COVID-19, transmission was suspected in 8 cases, 5 with positive nasopharyngeal SARS-CoV-2 RT-PCR and 3 with SARS-CoV-2 IgM. However, these cases arise from maternal infection close to childbirth, which may not allow sufficient time for transmission.</td>
<td>Current data fail to demonstrate maternal-fetal transmission, but are largely incomplete. According to these data, the transmission risk is probably very low, possibly under 1% following maternal SARS-CoV-1 infection during pregnancy.</td>
<td>Egloff C, Vauloup-Fellous C, Picone O, Mandelbrot L, Roques P. Evidence and possible mechanisms of rare maternal-fetal transmission of SARS-CoV-2 [published online 2020 May 18]. J Clin Virol. doi:10.1016/j.jcv.2020.104447</td>
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<td>Key Terms</td>
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<td>Summary &amp; Key Points</td>
<td>Specific Observations</td>
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<td>Children, newborns, clinical characteristics, laboratory findings, chest CT, systematic review</td>
<td>18-May-20</td>
<td>SARS-CoV-2 Infection in Children and Newborns: A Systematic Review</td>
<td>European Journal of Pediatrics</td>
<td>Review</td>
<td>This systematic review includes papers published between January 1 and May 1, 2020 on children (aged 0-18 years) with COVID-19. 62 studies and 3 reviews were included, with a total sample size of 7480 children (2428/4660 males, 52.1%; weighted mean age 7.6 years). Patients showed mainly mild (608/1432, 42.5%) and moderate (567/1432, 39.6%) signs of infection. About 2% of children were admitted to the pediatric intensive care unit. The most commonly described symptoms were fever (51.6%) and cough (47.3%). Laboratory findings were often unremarkable. Children underwent a chest CT scan in 73.9% of all cases, and 32.7% resulted normal. Overall, the estimated mortality was 0.08%. A higher proportion of newborns was severely ill (12% of 25 total newborns), and dyspnea was the most common sign (40%). Larger epidemiological and clinical cohort studies are needed to better understand possible implications of COVID-19 infection in children.</td>
<td>This systematic review found that SARS-CoV-2 affects children less severely than adults; laboratory and radiology findings are largely nonspecific in children but may help to identify those who are severely ill.</td>
<td>Liguori I, Pilotto C, Bonanni M, et al. SARS-CoV-2 infection in children and newborns: a systematic review [published online ahead of print, 2020 May 18]. Eur J Pediatr. doi:10.1007/s00431-020-03684-7</td>
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<tr>
<td>Pregnancy, neonates, lymphopenia, thrombocytopenia, obstetric outcomes, preterm delivery, China</td>
<td>18-May-20</td>
<td>Effects of SARS-CoV-2 Infection on Pregnant Women and Their Infants: A Retrospective Study in Wuhan, China</td>
<td>Archives of Pathology &amp; Laboratory Medicine</td>
<td>Research Article</td>
<td>All suspected cases of pregnant women with COVID-19, admitted to one center in Wuhan, China from January 20 to March 19, 2020 were included. 27 pregnant women (4 early pregnancies included) with laboratory or clinically confirmed SARS-CoV-2 infection, and 24 neonates born to the 23 late pregnant mothers were analyzed. On admission, 46.2% (13/27) of the pregnant women had symptoms, including fever (11/27), cough (9/27) and vomiting (1/27). Decreased total lymphocytes count was observed in 81.6% (22/27) patients. 26 patients showed typical viral pneumonia by chest CT scan. One mother developed severe pneumonia three days after her delivery. No maternal and perinatal death occurred. Moreover, one early preterm newborn, born to a mother with complication of premature rupture of fetal membranes, with high suspicion of SARS-CoV-2 infection, was SARS-CoV-2 negative after repeated RT-PCR testing. More patients in late pregnancy showed lymphopenia and thrombocytopenia as compared to those in early pregnancy (P&lt;0.05).</td>
<td>In this study on the effects of SARS-CoV-2 infection on maternal, fetal, and neonatal outcomes from a cohort in Wuhan, China, no major complications were reported among pregnant women with COVID-19 and their newborns.</td>
<td>Yang H, Hu B, Zhan S, Yang L, Xiong G. Effects of SARS-CoV-2 infection on pregnant women and their infants: A retrospective study in Wuhan, China [published online 2020 May 18]. Arch Pathol Lab Med. doi:10.5858/arpa.2020-0232-SA</td>
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<tr>
<td>Pregnancy, neonates, labor, obstetric management, breastfeeding, Nigeria, sub-Saharan Africa</td>
<td>18-May-20</td>
<td>Management of covid-19: A Practical Guideline for Maternal and Neonatal Medicine</td>
<td>Journal of Maternal Fetal and Neonatal Medicine</td>
<td>Other Articles</td>
<td>At the time of writing, there have been no confirmed obstetric cases of COVID-19 in Nigeria; the only confirmed case of COVID-19 in a child in Nigeria is a 6-week-old infant who returned from the UK with the mother. As the rate of obstetric cases will likely rise in Nigeria and other African countries, pregnant women will have to be attended to in facilities that are distinct from the COVID-19 isolation centers in the country. This guideline prepares and equips clinicians working in the maternal and newborn health care sectors in the sub-region to manage COVID-19 during pregnancy and childbirth. With regard to breastfeeding, the authors note that the practice to support, promote and protect breastfeeding should continue until there is sufficient evidence to advise otherwise. They recommend that the frequency of direct breastfeeding should be reduced to one to two times daily, and other feeds should be expressed breast milk, fed orally in order to limit mother-newborn contact and improve lactation.</td>
<td>These guidelines on obstetric and newborn management during the COVID-19 pandemic are intended for use by maternal and newborn care providers in sub-Saharan Africa.</td>
<td>Ezenwa BN, Fajolu IB, Akinajo OR, et al. Management of covid-19: a practical guideline for maternal and newborn health care providers in Sub-Saharan Africa [published online 2020 May 18]. J Matern Fetal Neonatal Med. doi:10.1098/14767058.2020.1763948</td>
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<td>Adolescent, epilepsy, multi-organ failure,</td>
<td>18-May-20</td>
<td>Cardiac dysfunction and thrombosis</td>
<td>The Lancet Child &amp; Youth Health</td>
<td>Case Report</td>
<td>A 16-year-old male with chromosome 18q deletion and well controlled epilepsy presented to the Children's National Hospital (Washington, DC, USA) with hemodynamic shock after 4 days of fever and one generalized convulsion. He was admitted for further evaluation and management. During the course of his hospital stay, he developed severe multi-organ failure, including renal failure, respiratory failure, and thrombocytopenia.</td>
<td>In this case report, an 16-year-old male with confirmed SARS-CoV-2 infection presented with multi-organ failure, including renal failure, respiratory failure, and thrombocytopenia.</td>
<td>Latimer G, Corriveau C, DeBiasi RL, et al. Cardiac dysfunction and thrombocytopenia in a young man with COVID-19.</td>
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<td>cardiac injury, coagulopathy, Washington D.C., USA</td>
<td></td>
<td>Adolescent Health</td>
<td>18-May-20</td>
<td>Correspondence</td>
<td>sepsis at home. Although he had no respiratory symptoms, his mother was ill with a cough. Upon arrival, he was intubated and resuscitated. Initial testing did not detect SARS-CoV-2; however, a second test for SARS-CoV-2 was positive on day 3 after hospital admission. In addition to kidney injury, liver injury, and coagulopathy, the patient showed acute respiratory distress syndrome and significant myocardial injury. His overall presentation met criteria for the thrombocytopenia-associated multiple organ failure (TAMOF) inflammation phenotype: he had organ failure in at least three organ systems, as well as thrombocytopenia, acute kidney injury, and a lactate dehydrogenase concentration &gt;250 U/L. The patient has been discharged to a rehabilitation facility after a 46-day ICU admission.</td>
<td>infection presented with hyperinflammatory syndrome, coagulopathy, and cardiac injury mimicking the profile of severe COV-19 in adults.</td>
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<td>Adolescents, cutaneous manifestations, silent carriers, Italy</td>
<td>18-May-20</td>
<td>Silent COVID-19: what your skin can reveal</td>
<td>The Lancet Infectious Diseases</td>
<td>Correspondence</td>
<td>Clinical manifestations of COVID-19 are rare or absent in children and adolescents; hence, early clinical detection is fundamental to prevent further spreading. This report describes three young patients (14, 14, and 18 years), presenting with chilblain-like lesions, who were diagnosed with SARS-CoV-2 infection; two were asymptomatic. Lesions involved acral sites, especially the dorsum of the digits of the feet, beginning as erythematous-violaceous patches that slowly evolved to purpuric lesions and then to blisters and ulceroc-necrotic lesions, with final complete return to normal. Burning and itching were also present with some of the lesions. Acute ischemic manifestations along the course of SARS-CoV-2 infection could represent a cutaneous expression of the typical thrombotic pattern of COVID-19 due to hyperinflammation and altered coagulation and endothelial damage. This report contributes to growing evidence of chilblain-like lesions in otherwise asymptomatic children and adolescents with COVID-19; the authors suggest that acute cutaneous manifestations could help early detection of silent carriers.</td>
<td></td>
<td>Guaneri C, Rullo EV, Pavone P, et al. Silent COVID-19: what your skin can reveal [published online 2020 May 18]. Lancet Infect Dis. doi:10.1016/S1473-3099(20)30402-3</td>
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<td>Maternity hospital, workforce shortage, health care workers, universal screening</td>
<td>18-May-20</td>
<td>COVID-19 screening of health-care workers in a London maternity hospital</td>
<td>The Lancet Infectious Diseases</td>
<td>Correspondence</td>
<td>Between March 17 and April 16, 2020, the Portland Hospital for Women and Children (London, UK) tested nasopharyngeal swabs taken from 266 staff members (&gt;50% of workforce) using SARS-CoV-2 RT-PCR, and 47 (18%) were found to be positive. Of these positive cases, 31 (66%) were symptomatic and 16 (34%) were asymptomatic. Overall, 28 (48%) staff members remained positive at 7 days after the initial test was taken, 16 (34%) at 10 days, and four (9%) at 14 days, with one health-care worker remaining positive until 26 days. Of 76 initially symptomatic staff members, 45 (59%) tested negative for SARS-CoV-2. Of 25 symptomatic staff members who initially tested negative and were retested, only one (4%) became positive after 7 days. Benefits of universal staff testing include the amelioration of current workforce depletion due to symptomatic staff self-isolating, because a substantial proportion do not have COVID-19. Regular testing also allows early identification and isolation of asymptomatic SARS-CoV-2-positive health-care workers, thus reducing nosocomial transmission. Universal staff testing at a London maternity hospital revealed a high proportion of negative SARS-CoV-2 tests among symptomatic staff members, allowing those uninfected to return to work and helping reduce the current burden of workforce shortage.</td>
<td></td>
<td>Khalil A, Hill R, Ladhani S, et al. COVID-19 screening of health-care workers in a London maternity hospital [published online 2020 May 18]. Lancet Infect Dis. doi:10.1016/S1473-3099(20)30403-5</td>
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<td>Children, viral load, throat vs. anal swabs, RT-PCR assay, China</td>
<td>18-May-20</td>
<td>Viral Loads in Throat and Anal Swabs in Children Infected With SARS-CoV-2</td>
<td>Emerging Microbes &amp; Infections</td>
<td>Research Article</td>
<td>In this retrospective review of RT-PCR results of 2138 pediatric patients with suspected SARS-CoV-2 infection at Wuhan Children’s Hospital, 212 cases were tested with RT-PCR assays on both throat and anal swabs, whereas 1926 cases were tested with RT-PCR assays on throat swabs only. 78/212 patients tested positive on either throat or anal swabs; the diagnostic potential of these two types of specimens showed significant difference (positive rate: 78.2% on throat swabs vs. 52.6% on anal swabs, McNemar Test P=0.0091) and exhibited weak positive consistency (Kappa value: 0.311, Data from SARS-CoV-2 RT-PCR-testing of pediatric patients in Wuhan, China revealed no difference in viral load between throat and anal swabs; findings also showed correlation</td>
<td></td>
<td>Yuan C, Zhu H, Yang Y, et al. Viral loads in throat and anal swabs in children infected with SARS-CoV-2 [published online 2020 May 18]. Emerg Microbes Infect. doi:10.1080/22221751.2020.1771219</td>
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COVID-19, Maternal and Child Health, Nutrition – Literature Repository
May 2020

Key Terms | Date Published | Title | Journal / Source | Type of Publication | Summary & Key Points | Specific Observations | Full Citation
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Neonates, pregnancy, clinical presentation, breastfeeding, isolation | 18-May-20 | COVID 19 in Neonates | Journal of Maternal Fetal and Neonatal Medicine | Review Article | There is limited evidence to support the possibility of vertical transmission. Clinical presentation in neonates is nonspecific, commonly observed as temperature instability, respiratory distress, poor feeding, lethargy, vomiting and diarrhea. A suspect case is defined as a neonate born to the mother with a history of 2019-nCoV infection between 14 days before delivery and 28 days after delivery, or as a neonate directly exposed to those infected with 2019-nCoV. The authors recommend that suspected COVID-19 positive mothers and their newborns should be kept together in a designated isolation room. Mothers can breastfeed their newborns with proper hand and breast hygiene precautions. For confirmed COVID-19 positive mothers, the authors recommend that neonates should be isolated immediately after delivery, if facilities for isolation are available. In these cases, breastfeeding can resume once the mother becomes asymptomatic and two consecutive maternal swabs, separated by at least 24 hours, are negative. | This article summarizes current evidence on clinical presentation of COVID-19 in neonates, as well as recommendations for delivery room and postnatal management of neonates born to suspected or confirmed COVID-19 positive mothers. | Kallem VR, Sharma D. COVID 19 in neonates [published online 2020 May 18]. J Matern Fetal Neonatal Med. doi:10.1080/14767058.2020.1759542

Children, routine immunization services, non-influenza vaccines, up-to-date status, Michigan, USA | 18-May-20 | Decline in Child Vaccination Coverage During the COVID-19 Pandemic — Michigan Care Improvement Registry, May 2016–May 2020 | Morbidity and Mortality Weekly Report | Report | Michigan implemented a stay-at-home order on March 23, 2020. Such strategies might result in decreased accessibility to routine immunization services, leaving children at risk for vaccine-preventable diseases. Vaccination coverage declined in all milestone age cohorts (each including an average sample size of 9,269 between 2016-2019 and 9,539 for 2020), except for birth-dose hepatitis B coverage. Among children aged 5 months, up-to-date status for all recommended vaccines declined from approximately two thirds of children during 2016–2019 (66.6%, 67.4%, 67.3%, 67.9%, respectively) to fewer than half (49.7%) in May 2020. For the 16-month age cohort, coverage with all recommended vaccines declined, with measles-containing vaccination coverage decreasing from 76.1% in May 2019 to 70.9% in May 2020. In addition to a decline in up-to-date status in almost all age cohorts, the number of non-influenza vaccine doses administered and reported for children aged ≤2 years decreased 21.5%, and the number of doses administered to children aged ≥24 months decreased 15.5% during January–April 2020, compared with the same averaged periods in 2018 and 2019. | Disruptions in essential outpatient health services, like routine immunization, have occurred during efforts to mitigate transmission of SARS-CoV-2. In Michigan, vaccine coverage declined in all milestone age cohorts in 2020, compared to 2016-2019. | Bramer CA, Kimmins LM, Swanson R, et al. Decline in Child Vaccination Coverage During the COVID-19 Pandemic — Michigan Care Improvement Registry, May 2016–May 2020. MMWR Morb Mortal Wkly Rep. ePub: 18 May 2020. DOI: http://dx.doi.org/10.15585/mmwr.mm6920e1

Children, elderly, age-related difference, humoral | 18-May-20 | Distinct systems serology features in children, elderly and COVID patients | medRxiv | Preprint (not peer reviewed) | COVID-19 results in higher pathogenicity and mortality in the elderly compared to children. Examining baseline SARS-CoV-2 cross-reactive immunological responses, induced by circulating human coronaviruses (hCoV), is needed to understand whether pre-existing hCoV antibody-mediated immunity contributes to COVID-19 outcomes. The cross-reactivity between each type of specimen and particular phases of infection (or immune states of patients). | Elevated cross-reactive SARS-CoV-2 IgM in children, compared to elderly individuals in this study, suggest that | Selva KJ, van de Sandt CE, Lemke MM, et al. Distinct systems serology features in children, elderly and COVID patients [published online 2020 May 18]. J Virol. doi:10.1128/JVI.00703-20
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<td>immunity, serology, cross-reactivity</td>
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<td>of CoV antibody responses of healthy children (n=89), adults (n=98), elderly (n=57), and COVID-19 patients (n=19) were analyzed by systems serology. Vastly different serological signatures were observed between healthy children and elderly, with markedly higher cross-reactive SARS-CoV-2 IgA and IgG observed in elderly individuals, whereas children displayed elevated SARS-CoV-2 IgM, including receptor binding domain-specific IgM with higher avidity. These results suggest that less-experienced humoral immunity associated with higher IgM, as observed in children, may have the potential to induce more potent antibodies upon SARS-CoV-2 infection.</td>
<td>less experienced humoral immunity is associated with better response to SARS-CoV-2 infection.</td>
<td>2020 May 18, medRxiv. doi:10.1101/2020.05.11.2008459</td>
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<td>Neonates, pregnancy, clinical characteristics, mild infection, USA</td>
<td>17-May-20</td>
<td>Neonatal Coronavirus 2019 (COVID-19) Infection: A Case Report and Review of Literature</td>
<td>Cureus</td>
<td>Case Report</td>
<td>This report presents a case of neonatal infection in New York, USA. A 22-day-old, previously healthy, full-term neonate was hospitalized after presenting with a one-day history of fever and poor feeding. Routine neonatal sepsis evaluation was negative. SARS-CoV-2 PCR testing was obtained, given rampant community transmission, which returned positive. There were no other laboratory or radiographic abnormalities. The infant recovered completely and was discharged home in two days once his feeding improved.</td>
<td>This report presents a mild case of neonatal SARS-CoV-2 infection and a review of published cases of neonatal COVID-19, confirming observations of milder infection in this population.</td>
<td>Dumps V, Kamity R, Vinci AN, Noyola E, Noor A. Neonatal Coronavirus 2019 (COVID-19) Infection: A Case Report and Review of Literature. Cureus. 2020;12(5):e8165. Published 2020 May 17. doi:10.7759/cureus.8165</td>
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<td>Children, acute heart failure, multisystem inflammatory syndrome, IV immunoglobulin, France, Switzerland</td>
<td>17-May-20</td>
<td>Acute Heart Failure in Multisystem Inflammatory Syndrome in Children (MIS-C) in the Context of Global SARS-CoV-2 Pandemic</td>
<td>Circulation</td>
<td>Research Article</td>
<td>Cardiac injury and myocarditis have been described in adults with COVID-19, whereas SARS-CoV-2 infection in children is typically minimally symptomatic. This series reports retrospectively collected data on 35 febrile pediatric patients (median 10 years, range 2-16 years) with acute heart failure potentially associated with SARS-CoV-2 infection and the multisystem inflammatory syndrome in children (MIS-C), who were admitted to PICUs over a two-month period contemporary with the SARS-CoV-2 pandemic in France and Switzerland. Among this cohort, co-morbidities were present in 28% including asthma and overweight. Gastrointestinal symptoms were prominent. Left ventricular ejection fraction was &lt;30% in one third; 80% required isotropic support with 28% treated with extracorporeal membrane oxygenation (ECMO). Inflammation markers were suggestive of cytokine storm (IL-6 median 135 pg/mL) and macrophage activation (D-dimer median 5284 ng/mL). Mean brain natriuretic peptide was elevated (5743 pg/mL). 31/35 (88%) patients tested positive for SARS-CoV-2 infection by PCR of nasopharyngeal swab or serology. All patients received IV immunoglobulin, with adjunctive steroid therapy used in one third. Left ventricular function was restored in the 25/35 of those discharged from the ICU. No patient died, and all patients treated with ECMO were successfully weaned.</td>
<td>Retrospective data from France and Switzerland reveal that children may experience acute cardiac decompensation due to severe inflammatory state following SARS-CoV-2 infection. Based on findings, treatment with IV immunoglobulin appears to be associated with recovery of left ventricular systolic function.</td>
<td>Belhadjer Z, Méot M, Bajolle F, et al. Acute heart failure in multisystem inflammatory syndrome in children (MIS-C) in the context of global SARS-CoV-2 pandemic [published online 2020 May 17]. Circulation. doi:10.1161/CIRCULATIONAHA.120.048360</td>
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<td>Children, clinical characteristics, diarrhea,</td>
<td>17-May-20</td>
<td>Children With Coronavirus Disease 2019 (COVID-19): A</td>
<td>Journal of Medical Virology</td>
<td>Review</td>
<td>This review evaluates the demographic, clinical, laboratory and imaging features from 2,597 recently reported pediatric patients with COVID-19 (1,185 confirmed; 1,412 suspected cases). Of 2,492 cases where information on age distribution was available, 446 (17.9%) were &lt;1 year, 593 (23.8%).</td>
<td>This analysis contributes to growing evidence determining</td>
<td>Cui X, Zhang T, Zheng J, et al. Children with Coronavirus Disease 2019 (COVID-19): A Review of...</td>
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<td>lymphopenia, creatine kinase</td>
<td>16-May-20</td>
<td>Perspectives on Challenges and opportunities for birth defects surveillance programs during and after the COVID-19 era</td>
<td>Birth Defects Research</td>
<td>Review</td>
<td>The authors provide a perspective on the potential impact of the COVID-19 pandemic, and the subsequent containment policies, on birth defects surveillance and analysis. The article discusses possible effects on clinical birth defect diagnoses, routine birth defects surveillance system activities, and epidemiologic considerations, as well as opportunities for mitigating the impact of COVID-19. Due to the impact of COVID-19, birth defects surveillance programs may be faced with organizational and methodological obstacles. The authors provide information for a better understanding of these potential challenges in order to facilitate better planning and collaboration across programs to overcome barriers to core activities and to prepare for novel opportunities for research and prevention.</td>
<td>The article discusses possible effects on clinical birth defect diagnoses, routine birth defects surveillance system activities, and epidemiologic considerations, as well as opportunities for mitigating the impact of COVID-19.</td>
<td>Ludorf KL, Salemi JL, Kirby RS, Tanner JP, Agopian AJ. Perspectives on challenges and opportunities for birth defects surveillance programs during and after the COVID-19 era. Birth Defects Res. 2020;112(14):1039-1042. doi:10.1002/bdr2.1710</td>
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<td>Birth defects, birth defects registry, coronavirus, COVID-19, pregnancy, surveillance</td>
<td>16-May-20</td>
<td>Management of Infantile Hemangiomas during the COVID pandemic</td>
<td>Pediatric Dermatology</td>
<td>Statement</td>
<td>Infantile hemangiomas (IH) can require urgent evaluation and risk stratification to determine which infants need treatment and which can be managed with continued observation. The Hemangioma Investigator Group created consensus recommendations for management of IH via telemedicine. This effort was prompted by the COVID-19 pandemic, but the authors recognized the utility of such guidelines in other situations in which telemedicine is used. FDA/EMA-approved monitoring guidelines, clinical practice guidelines, and relevant publications regarding initiation and monitoring of beta-blocker therapy were used to inform the recommendations. Clinical decision-making guidelines about when telehealth is an appropriate alternative to in-person visits, including medication initiation, dosage changes, and ongoing evaluation, are included. The importance of communication with caregivers in the context of telemedicine is discussed, and online resources for both hemangioma education and propranolol therapy are provided.</td>
<td>In this consensus statement, the authors provide guidance on prioritizing patient safety while providing timely treatment to patients with infantile hemangiomas (IH) that require early intervention. The authors envisage use of these guidelines in the case of the COVID-19 pandemic, natural disasters, and limited access to specialists for IH.</td>
<td>Frieden IJ, Pütten KB, Drolet BA, et al. Management of infantile hemangiomas during the COVID pandemic. [published online, 2020 May 16]. Pediatr Dermatol. 2020;37(3):412-418. doi:10.1111/pde.14196</td>
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<td>Healthcare delivery, vascular tumor, hemangioma, infants</td>
<td>16-May-20</td>
<td>Review of Demographic, Clinical, Laboratory and Imaging Features in 2,597 Pediatric Patients</td>
<td>New Scientist</td>
<td>News &amp; Technology</td>
<td>A growing number of case studies suggest that, while pregnant people don't seem to be at greater risk of infection or disease, COVID-19 is linked to a higher rate of cesareans and preterm births, and the virus may be able to cross the placenta to reach the fetus. It is possible that the illness may trigger early labor or that newborns were delivered early as a precaution, to protect the mother's health. Some studies have found newborns who test positive shortly after birth and have detected SARS-CoV-2 in the placenta. However, most studies have found no evidence of trans-placental transmission.</td>
<td>Although some pregnant women with COVID-19 have experienced adverse outcomes, such as a higher rate of cesarean section and preterm birth, evidence on the possibility of trans-</td>
<td>Hamzelou J. Coronavirus may cross placenta. New Sci. 2020;246(3282):11. doi:10.1016/S0262-4079(20)30911-8</td>
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<td>Pregnancy, critical disease, convalescent plasma, remdesivir, USA</td>
<td>16-May-20</td>
<td>The Use of Convalescent Plasma Therapy and Remdesivir in the Successful Management of a Critically Ill Obstetric Patient With Novel Coronavirus 2019 Infection: A Case Report</td>
<td>Case Reports in Women’s Health</td>
<td>Case Report</td>
<td>Remdesivir is a novel therapeutic with known activity against SARS-CoV-2 and related coronaviruses. Remdesivir, as well as convalescent plasma therapy, are currently under investigation as potential therapies for patients with COVID-19. In this case report, the use of convalescent plasma therapy, followed by remdesivir as a late addition, in the treatment of a critically ill obstetric patient (22 weeks and 2 days of gestation) with critical COVID-19 is described. The patient subsequently improved, was extubated 5 days after initiation of remdesivir, was transitioned to room air 24 hours later, and discharged at the completion of remdesivir therapy.</td>
<td>This case of critical COVID-19 disease in a pregnant patient shows promise for remdesivir as a viable therapy for COVID-19.</td>
<td>Anderson J, Schauer J, Bryant S, Graves CR. The use of convalescent plasma therapy and remdesivir in the successful management of a critically ill obstetric patient with novel coronavirus 2019 infection: A case report [published online 2020 May 16]. Case Rep Womens Health. doi:10.1016/j.crwh.2020.e0021</td>
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<td>Pediatrics vs. adult patients, rheumatic disease, tDMARD, Spain</td>
<td>16-May-20</td>
<td>Incidence of COVID-19 in a Cohort of Adult and Paediatric Patients With Rheumatic Diseases Treated With Targeted Biologic and Synthetic Disease-Modifying Anti-Rheumatic Drugs</td>
<td>Seminars in Arthritis and Rheumatism</td>
<td>Original Article</td>
<td>A cross-sectional study comprising of a telephone survey and electronic health records review was performed including 959 adult and pediatric patients with rheumatic diseases treated with targeted biologic and synthetic disease modifying anti-rheumatic drugs (tDMARDs) in a large rheumatology tertiary centre in Barcelona, Spain. There were 11 confirmed SARS-CoV-2 positive cases in the adult cohort and no confirmed positive cases in the paediatric cohort. COVID-19 incidence rates of the rheumatic patient cohort were very similar to that of the general population (0.48% [95% CI 0.09 to 0.87%]) and [0.58% (95% CI 0.56 to 0.60%)], respectively. We found significant differences in tDMARD proportions between the suspected and non-suspected cases (p=0.002).</td>
<td>Adult and pediatric patients with rheumatic diseases on tDMARDs do not seem to present a higher risk of SARS-CoV-2 infection or more severe disease outcomes when compared to the general population.</td>
<td>Michelena X, Borrell H, López-Corbeto M, et al. Incidence of COVID-19 in a cohort of adult and paediatric patients with rheumatic diseases treated with targeted biologic and synthetic disease-modifying anti-rheumatic drugs [published online 2020 May 16]. Semin Arthritis Rheum. doi:10.1016/j.semarthrit.2020.05.001</td>
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<td>Twin pregnancy, ARDS, emergency cesarean section, premature delivery, USA</td>
<td>16-May-20</td>
<td>Novel coronavirus-related acute respiratory distress syndrome in a patient with twin pregnancy: A case report</td>
<td>Case Reports in Women’s Health</td>
<td>Case Report</td>
<td>A 39-year-old woman (gravida 1, para 0) presented at 27 weeks’ gestation with nasal congestion and dry cough for 7 days. Her physical examination was benign, and laboratory studies were unremarkable. A PCR test was positive for SARS-CoV-2, and a chest CT scan showed bilateral multi-focal ground-glass opacities. A fetal non-stress test was reassuring. During her hospital stay, she developed progressively worsening respiratory failure that progressed to acute respiratory distress syndrome requiring mechanical ventilation. She then suffered from sudden hypoxemia and hemodynamic collapse, on maximal ventilatory support, prompting an emergency cesarean section at bedside, which led to rapid stabilization. Both of the twins were born prematurely, and one tested positive for SARS-CoV-2. Following birth, the twins were transferred to the NICU and were not breast fed.</td>
<td>In this case of acute respiratory distress syndrome due to SARS-CoV-2 in a pregnant patient, oxygenation status dramatically improved after delivery of twins; one twin tested positive for SARS-CoV-2 72h after birth.</td>
<td>Mehta H, Ivanovic S, Cronin A, et al. Novel coronavirus-related acute respiratory distress syndrome in a patient with twin pregnancy: A case report [published online 2020 May 16]. Case Rep Womens Health. doi:10.1016/j.crwh.2020.e0020</td>
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<td>Children, screening, olfactory and gustatory dysfunction, China, France, Germany</td>
<td>16-May-20</td>
<td>Olfactory and Gustatory Dysfunction as An Early Identifier of COVID-19 in Adults and Children: An International Multicenter Study</td>
<td>Preprint (not peer reviewed)</td>
<td>In this multicenter case series from China, France, and Germany, 161 (41%) of 394 PCR confirmed COVID-19 positive patients reported olfactory or gustatory dysfunction (n=239 Chinese, n=39 German, n=116 French) and were included in this study. The median age of included subjects was 39 years old, 92/161 (57%) were male, and 10/161 (6%) were children (range: 15-17 years). Of 161 included subjects, 10% had only olfactory or gustatory symptoms, and 19% had olfactory and/or gustatory complaints prior to any other COVID-19 symptom. Of subjects with objective olfactory testing, 10/90 demonstrated abnormal chemosensory function despite reporting normal subjective olfaction. 43% (44/102) of subjects with follow-up showed symptomatic improvement in olfaction or gustation.</td>
<td>Olfactory and/or gustatory disorders may represent early or isolated symptoms of SARS-CoV-2 infection, in both adults and children (15-17 years old in this study).</td>
<td>Qiu C, Cui C, Hautefort C, et al. Olfactory and Gustatory Dysfunction as An Early Identifier of COVID-19 in Adults and Children: An International Multicenter Study [published online 2020 May 16]. medRxiv. doi:10.1101/2020.05.13.200198</td>
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<tr>
<td>Kawasaki disease, myocarditis, children, inflammation</td>
<td>15-May-20</td>
<td>COVID-19 and Kawasaki syndrome: should we really be surprised?</td>
<td>Letter to the Editor</td>
<td>The hyperinflammatory response to COVID-19 in children is being labeled as a new entity, one that is distinct from Kawasaki Disease (KD). The authors argue that this observed phenomenon may be KD but with a new trigger. They note that that while the etiology of KD has remained elusive, there is substantial data pointing to a viral cause. Once exposed to a specific virus, children then mount an exaggerated inflammatory response which clinically manifests as KD. Previous coronaviruses have been demonstrated to trigger KD. They also argue that a hyperinflammatory response to COVID-19 has also been described at length in adults. They state that the medical community must put findings from COVID-19 in context of what is already known about other viruses and critical illness. They caution against inappropriately creating new clinical entities or exaggerating known ones because of an association with COVID-19.</td>
<td>In this letter, the authors argue that the hyperinflammatory response to COVID-19 in children may in fact be Kawasaki disease. They warn the medical community from creating a new clinical diagnosis due to an association with COVID-19.</td>
<td>Loomba RS, Villarreal E, Flores S. COVID-19 and Kawasaki syndrome: should we really be surprised?. [published online, 2020 May 15]. Cardiol Young. doi:10.1017/S104795112001432</td>
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<td>Gynecology, guidelines, China</td>
<td>15-May-20</td>
<td>Management of Gynecology Patients During the Coronavirus Disease 2019 Pandemic: Chinese Expert Consensus</td>
<td>Special report</td>
<td>During the COVID-19 outbreak in mainland China, the Chinese Obstetricians and Gynecologists Association distributed guidelines developed by the Department of Obstetrics and Gynecology at the Peking Union Medical College Hospital regarding the care of gynecologic patients. Experts from 31 provinces and autonomous regions of mainland China contributed to their development. With the implementation of these guidelines, no nosocomial infections of COVID-19 have been identified at the Peking Union Medical College Hospital. The guidelines describe basic infection precaution principles, an epidemiologic screening tool, prioritization of surgical procedures, and operating room requirements, and the authors include several protocols and workflows within the article. The authors also review the management of gynecologic patients during the COVID-19 epidemic in the outpatient setting, operative and nonoperative inpatient settings, and in clinical trials.</td>
<td>The authors share guidelines for care of gynecologic patients during a COVID-19 outbreak that might be helpful to departments of obstetrics and gynecology internationally.</td>
<td>Qiu L, Morse A, Di W, et al. Management of gynecology patients during the coronavirus disease 2019 pandemic: Chinese expert consensus. Am J Obstet Gynecol. 2020;223(1):3-8. doi:10.1016/j.ajog.2020.05.024</td>
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<td>Children, neonates, epidemiology, pathogenesis, diagnosis, management, breastfeeding, China</td>
<td>15-May-20</td>
<td>Coronavirus Disease 2019 (COVID-19) in Neonates and Children From China: A Review</td>
<td>Review Article</td>
<td>This review summarizes current understanding of SARS-CoV-2 infection in neonates and children from January 24 to May 1, 2020 using experience from China. Epidemiology, pathogenesis, diagnosis, and management of COVID-19 in children and neonates are presented. Given that symptoms of COVID-19 in children and neonates are atypical, and transmission within family clusters is common, more effort should be made to protect this high-risk population. Although there is still no direct evidence of vertical transmission, the authors argue that rescue of newborns of infected pregnant women in delivery should not be delayed. The authors also argue that this observed phenomenon may be KD but with a new trigger. They note that that while the etiology of KD has remained elusive, there is substantial data pointing to a viral cause. Once exposed to a specific virus, children then mount an exaggerated inflammatory response which clinically manifests as KD. Previous coronaviruses have been demonstrated to trigger KD. They also argue that a hyperinflammatory response to COVID-19 has also been described at length in adults. They state that the medical community must put findings from COVID-19 in context of what is already known about other viruses and critical illness. They caution against inappropriately creating new clinical entities or exaggerating known ones because of an association with COVID-19.</td>
<td>A review of COVID-19 in children and neonates, based primarily on Chinese experience and literature, is presented.</td>
<td>Yu Y, Chen P. Coronavirus Disease 2019 (COVID-19) in Neonates and Children From China: A Review [published online 2020 May 15]. Front Pediatr. doi:10.3389/fped.2020.00287</td>
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<td>Pregnancy, neonatal infection, vertical transmission</td>
<td>15-May-20</td>
<td>Is SARS-CoV-2 Vertically Transmitted?</td>
<td>Frontiers in Pediatrics</td>
<td>Review Article</td>
<td>Few studies on the vertical transmission of SARS-CoV-2 are found in the literature. In all case reports and case series, the mothers’ infection occurred in the third trimester of pregnancy, there were no maternal deaths, and most neonates had a favorable clinical course. Viral RNA was not detected in neonatal nasopharyngeal swab samples at birth, in the placenta, in the umbilical cord, in the amniotic fluid, in the breast milk or in the maternal vaginal swab samples in any of these articles. Only three papers reported neonatal SARS-CoV-2 infection, but there is a bias that positive pharyngeal swab samples were collected at 36 hours and on the 2nd, 4th, and 17th days of life (the possibility of nosocomial infection cannot be ruled out). The possibility of intrauterine infection has been based mainly on the detection of IgM and IL-6 in the neonates’ serum. In conclusion, to date, no convincing evidence has been found for vertical transmission of SARS-CoV-2.</td>
<td>This mini-review does not find convincing evidence of SARS-CoV-2 vertical transmission in existing literature.</td>
<td>Simões e Silva AC, Leal CRV. Is SARS-CoV-2 Vertically Transmitted? [published online 2020 May 15]. Front Pediatr, doi:10.3389/fped.2020.00276</td>
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<td>Pediatric burns, steam inhalation, misconception, burn centers, UK</td>
<td>15-May-20</td>
<td>Steam Inhalation and Paediatric Burns During the COVID-19 Pandemic</td>
<td>The Lancet</td>
<td>Correspondence</td>
<td>Steam inhalation is traditionally used as a home remedy for common colds and upper respiratory tract infections. The evidence base of the practice is weak, with unproven theories that the steam loosens mucus, opens nasal passages, and reduces mucosal inflammation, or that the heat inhibits replication of viruses. Since lockdown measures were implemented in the UK, the Burns Centre at Birmingham Children’s Hospital received a 30-fold increase in the number of scalds directly resulting from steam inhalation. The youngest child was aged 2 weeks, and the most severe case involved 8% of the child’s total body surface area. A survey across Burn Services in England revealed that 50% of center had observed similar increases in cases of scalds. The authors caution that steam inhalation is a hazard to children, and parental education is paramount to preventing these injuries.</td>
<td>The authors link common misconceptions that steam inhalation is beneficial for respiratory tract symptoms in children to an increase in the number of scalds due to steam inhalation at burn centers across the UK.</td>
<td>Brewster CT, Choong J, Thomas C, Wilson D, Moiemen N. Steam inhalation and paediatric burns during the COVID-19 pandemic [published online 2020 May 15]. Lancet. doi:10.1016/S0140-6736(20)31144-2</td>
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<td>Pediatric testing, sequential tests, sensitivity, false negative rate, USA</td>
<td>15-May-20</td>
<td>Can Pediatric COVID-19 Testing Sensitivity Be Improved With Sequential Tests?</td>
<td>Anesthesia &amp; Analgesia Journal</td>
<td>Letter to the Editor</td>
<td>A significant proportion of children with COVID-19 may be asymptomatic or undiagnosed carriers, capable of transmitting the virus. This report describes a pediatric patient, who tested positive for SARS-CoV-2 after an initial negative result, and a review of literature showing that the false negative rate of two sequential tests would be approximately 6-12%. However, the clinical negative predictive value is difficult to estimate precisely during the current period of high prevalence, which compounds the difficulty of estimating sensitivity of sequential tests.</td>
<td>Based on limited studies, the false negative rate of sequential SARS-CoV-2 tests would be 6-12%. This raises concern for pediatric patients who may be asymptomatic or undiagnosed carriers.</td>
<td>Soneru CN, Petersen TR, Bajracharya M, Halid S, Demeter A. Can pediatric COVID-19 testing sensitivity be improved with sequential tests? [published online 2020 May 15]. Anesth Analg.</td>
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Children, age-related susceptibility, ACE2, immature immune system, antibody response, pathophysiology

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<td>Children, age-related susceptibility, ACE2, immature immune system, antibody response, pathophysiology</td>
<td>15-May-20</td>
<td>Why Is SARS-CoV-2 Infection Milder Among Children?</td>
<td>Clinics (Sao Paulo)</td>
<td>Editorial</td>
<td>One hypothesis for the diminished susceptibility of children to SARS-CoV-2 suggests a different ACE2 configuration, concentration, or binding capacity or a less harmful alveolar epithelial cell response to ACE2 in children when compared with that in adults. Another hypothesis suggests that the relative resistance of children could be due to an immature immune system, leading to decreased inflammation and lung injury. The observation that immune-immature and some immunosuppressed hosts are spared from severe manifestations could elucidate COVID-19 aggression mechanisms and indicate pathways for treatment. In addition, antibodies could contribute to the severity of disease in adults, who have produced antibody responses against several antigens from related viruses that could cross-react with SARS-CoV-2 and induce activation of an inflammatory response. Many elements of the pathophysiology of SARS-CoV-2 remain unknown.</td>
<td>This article reviews the pathophysiology of COVID-19 and various hypotheses for decreased susceptibility of children to SARS-CoV-2 compared to adults.</td>
<td>doi:10.1213/ANE.0000000009822</td>
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Pregnancy, neonates, asymptomatic, universal screening, Portugal

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<tr>
<td>Pregnancy, neonates, asymptomatic, universal screening, Portugal</td>
<td>15-May-20</td>
<td>Covid-19 during pregnancy: A case series from an universally tested population from the north of Portugal</td>
<td>European Journal of Obstetrics &amp; Gynecology and Reproductive Biology</td>
<td>Correspondence</td>
<td>The authors report a case series from a universally tested population at Hospital Pedro Hispano, located in the most COVID-19 affected region of Portugal. From March 25 to April 15, 2020, all 103 admitted pregnant women were tested for SARS-CoV-2. Twelve cases (11.7 %) were positive, 11 of which were asymptomatic. Of these, 10 had delivered at the time of writing, 6 by cesarean section and 4 vaginally. Gestational ages, 5 min Apgar scores and newborn weights ranged between 37–41 weeks, 9–10 and 2350–3380 g, respectively. Eight cases had mild fetal growth restriction, and there was one delivery of twins. There were no maternal complications, and all the newborns tested negative for SARS-CoV-2.</td>
<td>Based on universal testing of all pregnant women admitted to a hospital in Portugal, most cases were found to be asymptomatic, with largely favorable prognosis.</td>
<td>doi:10.1016/j.ejogrb.2020.05.029</td>
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Very preterm pregnancy, neonates, antenatal corticosteroids, prone positioning, post-partum hypoxemia, cesarean delivery, UK

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<tr>
<td>Very preterm pregnancy, neonates, antenatal corticosteroids, prone positioning, post-partum hypoxemia, cesarean delivery, UK</td>
<td>15-May-20</td>
<td>SARS-CoV-2 infection in very preterm pregnancy: Experiences from two cases</td>
<td>European Journal of Obstetrics &amp; Gynecology and Reproductive Biology</td>
<td>Correspondence</td>
<td>In two cases of very preterm pregnancy (28+4 and 28+6 weeks of gestation), women presented with respiratory symptoms. Case 1 was Afro-Caribbean and had a BMI of 42 and type 2 diabetes mellitus. Case 2 was Asian and had gestational diabetes. Early administration of corticosteroids and magnesium sulphate, for fetal neuroprotection, occurred prior to both women’s respiratory deterioration, within 24 hours of presentation. In both women, operative delivery improved maternal respiratory mechanics and gas exchange; this rapid recovery differs from the clinical course of influenza and the recovery of non-pregnant patients with SARS-CoV-2 infection following intubation. In addition, prone positioning immediately post-operatively improved acute post-partum hypoxemia in both women. In both cases, SARS-CoV-2 RNA swab from the mothers were positive, and from the newborns were negative. Apgar scores were 6 at 1 minute and 8 at 5 minutes for newborn 1, and 1 at 1 minute and 3 at 5 minutes for newborn 2. Both newborns are recovering well.</td>
<td>Operative delivery rapidly improved maternal respiratory function in two pregnant women with very preterm (&lt;32 weeks) pregnancy and deteriorating condition related to SARS-CoV-2 infection. Both newborns tested negative for SARS-CoV-2.</td>
<td>doi:10.1016/j.ejogrb.2020.05.025</td>
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Breastfeeding, WHO guidelines, human milk bank, milk donors

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<td>Breastfeeding, WHO guidelines, human milk bank, milk donors,</td>
<td>15-May-20</td>
<td>Speech Therapy, Breastfeeding and COVID-19: Information to Speech Therapist</td>
<td>Codas</td>
<td>Letter to Editor</td>
<td>This report describes current evidence on potential SARS-CoV-2 transmission in breast milk, breastfeeding guidelines by major international organizations, including the WHO, and infection control measures for human milk banks and donors. The Brazilian Society of Pediatrics has supported the maintenance of breastfeeding in mothers with COVID-19, given the current breastfeeding guidelines by major international organizations and recommendations for infection control.</td>
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<td>doi:10.1016/j.ejogrb.2020.05.025</td>
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<td>infection control, Brazil</td>
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<td>evidence. In addition, speech therapists have an active, positive role in the guidance for breastfeeding, thus should follow new recommendations.</td>
<td>measures for human milk donation are summarized in this report.</td>
<td>2020;32(3):e202000124. doi:10.1590/2317-1782/20192020124</td>
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<td>Nutritional management, ESPEN, feeding intolerance, gastrointestinal effects</td>
<td>15-May-20</td>
<td>Nutrition in Critically Ill Patients With COVID-19: Challenges and Special Considerations</td>
<td>Clinical Nutrition</td>
<td>Original Article</td>
<td>The European Society for Clinical Nutrition and metabolism (ESPEN) recently published guidelines for nutritional management of individuals with SARS-CoV-2 infection, which include recommendations for patients hospitalized in the ICU. These recommendations center on providing early enteral nutrition (EN), when possible, use of promotility agents to encourage gastric emptying, initiating peripheral nutrition (PN) if EN is not tolerated, and using EN post-extubation if oral nutrition is not tolerated. This report briefly outlines some of the unique considerations and challenges in providing nutrition to the critically ill COVID-19 population which have not been addressed in the recent guidelines. These challenges result from the direct effects of the SARS-CoV-2 virus on the gastrointestinal tract (e.g. intestinal dysmotility, bowel ischemia, and malabsorption) and are compounded by the elevated sedation required for this patient population.</td>
<td>This report highlights challenges of providing nutritional care for critically ill COVID-19 patients, with regard to the virus’ gastrointestinal effects, that have not been addressed in recent ESPEN guidelines.</td>
<td>Arkin N, Krishnan K, Chang MG, Bittner EA. Nutrition in critically ill patients with COVID-19: Challenges and special considerations [published online 2020 May 15]. Clin Nutr. doi:10.1016/j.clnu.2020.05.007</td>
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<td>Pregnancy, neonates, NICU, expert guidelines, Brazil</td>
<td>15-May-20</td>
<td>Expert Recommendations for the Care of Newborns of Mothers With COVID-19</td>
<td>Clinics (Sao Paolo)</td>
<td>Review Article</td>
<td>This article presents expert recommendations for managing care of newborns of mothers with suspected or diagnosed COVID-19. The consensus was developed by five experts in neonatal intensive care working at a reference university hospital in Brazil for the care of pregnant women and newborns with COVID-19. Despite the lack of scientific evidence regarding the potential for vertical transmission, it is important to elaborate the lines of care by specialists from hospitals caring for COVID-19 cases to guide multidisciplinary teams and families diagnosed with the disease or involved in the care of pregnant women and newborns in this context. Recommendations for neonatal care consider personal protective equipment and insulation precautions, assistance in the delivery room, newborn transport and ICU admission, clinical evaluation of newborns, breastfeeding (in support of breast milk expression), viral testing of newborns, visitation to hospitalized newborns, hospital discharge, and home isolation of mothers with COVID-19.</td>
<td>A consensus of experts in Brazil developed recommendations for the care of newborns born to mothers with suspected or confirmed COVID-19.</td>
<td>Carvalho WB, Gibelli MABC, Krebs VLJ, Calil VMLT, Johnston C. Expert recommendations for the care of newborns of mothers with COVID-19. Clinics (Sao Paulo). 2020;75:e1932. doi:10.6061/clinics/2020/e1 932</td>
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<td>Pediatric Emergency Departments, pandemic preparedness, PPE, simulation training, survey, Europe</td>
<td>15-May-20</td>
<td>Preparedness and Response to Pediatric CoViD-19 in European Emergency Departments: A Survey of the REPEM and PERUKI Networks</td>
<td>Annals of Emergency Medicine</td>
<td>Original Article</td>
<td>The authors designed a cross-sectional point prevalence survey to describe the variability and identify gaps in preparedness and response to the COVID-19 pandemic in European Emergency Departments (EDs) caring for children. Overall, 102 centers from 18 countries (86% response rate) completed the survey: 34% did not have an ED contingency plan for pandemics, and 36% had never had simulations for such events. Wide variation on PPE items was shown for recommended PPE use at pre-triage and for patient assessment, with 62% of centers experiencing shortage in one or more PPE items, most frequently FFP2/N95 masks. Only 17% of EDs had negative pressure isolation rooms. COVID-19 positive ED staff was reported in 25% of centers. In summary, a lack of early availability of a documented contingency plan, provision of simulation training, appropriate use of PPE, and appropriate isolation facilities must be optimized to improve preparedness and inform responses to future pandemics.</td>
<td>Findings from a cross-sectional point prevalence survey identified variation and gaps in preparedness to the COVID-19 pandemic across 102 European referral Emergency Departments for children.</td>
<td>Bressan S, Buonsenso D, Ferrugia R, et al. Preparedness and response to Pediatric CoViD-19 in European Emergency Departments: a survey of the REPEM and PERUKI networks [published online 2020 May 15]. Ann Emerg Med. doi:10.1016/j.annemer.2020.05.018</td>
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<td>Pregnancy, lactating women, breastfeeding, remdesivir, research inclusion</td>
<td>15-May-20</td>
<td>Protect Pregnant and Lactating Women With COVID-19 Through Research, Not From Research</td>
<td>President's Corner</td>
<td>Breastfeeding Medicine</td>
<td>Prior to the FDA's emergency use authorization of remdesivir, this promising therapy for severe COVID-19 was available for compassionate use in pregnant women and children &lt;18 years, but women were forbidden to breastfeed. Breastfeeding mothers were also excluded from clinical trials of remdesivir, posing a dilemma for mothers between accessing potentially life-saving therapy or providing human milk and its immune benefits to their infants. Due to these exclusion criteria, there are no data on the presence of the drug in human milk or outcomes among infants breastfed while mothers were on therapy. Breastfeeding pharmacologists suggest that remdesivir, administered intravenously, is unlikely to reach the infant's circulation in its active form. Too often, clinicians advise women to wean when they start treatments, without considering the risks of iatrogenic weaning for the health and wellbeing of mother and child. Pregnant and lactating women deserve evidence-based treatment for medical conditions.</td>
<td>This article advocates for the inclusion of pregnant and lactating women in clinical research, namely COVID-19 therapeutic trials, to facilitate access to potentially life-saving treatments and prevent the risks of iatrogenic weaning on maternal and infant health.</td>
<td>Stuebe A. Protect Pregnant and Lactating Women with COVID-19 Through Research, Not from Research [published online 2020 May 15]. Breastfeed Med. doi:10.1089/bfm.2020.29155.ams</td>
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<td>Children, inflammatory syndrome, antibody-mediated, delayed response, UK</td>
<td>15-May-20</td>
<td>Covid-19: Cases of Inflammatory Syndrome in Children Surge After Urgent Alert</td>
<td>BMJ</td>
<td>News</td>
<td>There has been a surge in cases of an inflammatory syndrome in children, believed to be linked to COVID-19, following an alert to doctors in the UK at the end of April. The syndrome has also been seen in Italy and the United States and has been compared to both Kawasaki Disease and toxic shock. Experts have said that the condition may be an &quot;antibody mediated or delayed response&quot; to COVID-19 that happens several weeks after the infection, which may explain why some children do not test positive for SARS-CoV-2 on PCR tests. While doctors must know what to look out for, the syndrome is rare and has good outcomes.</td>
<td>Experts believe that the pediatric inflammatory syndrome associated with COVID-19 may be an antibody mediated or delayed response to infection.</td>
<td>Mahase E. Covid-19: Cases of inflammatory syndrome in children surge after urgent alert. BMJ. 2020;369:m1990. Published May 2020;369:m1990. doi:10.1136/bmj.m1990</td>
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<td>Children, clinical research, pathophysiology, serology, therapeutic and vaccine development</td>
<td>15-May-20</td>
<td>Key Clinical Research Priorities for the Pediatric Community During the COVID-19 Pandemic</td>
<td>Pediatric Research</td>
<td>Comment</td>
<td>As the COVID-19 pandemic matures, it is important for the pediatric research community to identify and fill knowledge gaps to best address the needs of children. For children, several key issues require urgent preparation and action: 1) understanding the pathophysiology and clinical course of COVID-19 in children and the impact of maternal infection during pregnancy on the neonate, 2) ensuring the availability of rapid, point-of-care diagnostic testing, 3) conducting widespread serologic testing of children as a marker of susceptibility, 4) establishing a framework for evaluation of safety and efficacy of new therapeutic agents for COVID-19 in pediatric populations, and 5) evaluation of vaccines and other preventive measures for children.</td>
<td>The authors call on the pediatric research communities to fill key knowledge gaps, related to COVID-19 in children, which are listed in this publication.</td>
<td>Noel GI, Davis JM, Ramilo O, Bradley JS, Connor E. Key clinical research priorities for the pediatric community during the COVID-19 pandemic [published online 2020 May 15]. Pediat Res. doi:10.1038/s41390-020-0962-y</td>
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<td>Children, lockdown policies, social interaction, telemedicine, vaccinations</td>
<td>15-May-20</td>
<td>COVID-19 pandemic for Pediatric Health Care: disadvantages and opportunities</td>
<td>Pediatric Research</td>
<td>Editorial</td>
<td>Disruptions in pediatric health and research centers and in the life of children are an important issue of the COVID-19 pandemic. Limited school activities and social interactions are some of the disadvantages related to the disease. Some opportunities may also come, including the explanation of the “milder” course in children, as well as increased use of telemedicine and reconsideration of vaccinations. This article suggests a new potential field of research related to the pandemic itself and lockdown policies.</td>
<td>This article weighs the disadvantages of lockdown policies with the potential opportunities created by telemedicine, among others, for children’s health.</td>
<td>Pрактич AD. COVID-19 pandemic for Pediatric Health Care: disadvantages and opportunities [published online 2020 May 15]. Pediat Res. doi:10.1038/s41390-020-0955-x</td>
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<td>Pediatric classification, disease severity, radiological diagnosis</td>
<td>15-May-20</td>
<td>Toward a clinically based classification of disease severity for paediatric COVID-19</td>
<td>The Lancet Infectious Diseases</td>
<td>Correspondence</td>
<td>The authors respond to the article by Qi et al. describing 36 children with COVID-19 using the Chinese classification for pediatric COVID-19 severity, based on clinical and/or radiological criteria. The authors argue that radiological diagnosis, which involves high costs, the need for sedation, and radiation exposure, is not appropriate for children. They propose a change in definition of moderate disease in the pediatric classification of COVID-19</td>
<td>The authors propose the removal of radiological criteria from pediatric classification of COVID-19 severity.</td>
<td>Buoncensolo D, Parri N, De Rose C, et al. on behalf of the Gemelli-pediatric COVID-19 team. Toward a clinically based classification of disease severity for</td>
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<td>Pediatric classification, radiological diagnosis, chest CT, digital radiology</td>
<td>15-May-20</td>
<td>Toward a clinically based classification of disease severity for paediatric COVID-19 – Authors’ reply</td>
<td>The Lancet Infectious Diseases</td>
<td>Correspondence</td>
<td>The authors reply to the correspondence from Buonsenso et al. and state that radiological evidence is crucial in assessing organ damage, as indicated by the presence of pneumonia when COVID-19 progresses from mild or asymptomatic to severe. A clinical diagnosis based on a combination of symptoms may produce ambiguous results compared with the direct and objective evidence gained from radiological scans. In addition, the sensitivity of chest CT scans appears to be higher than that of RT-PCR, from the onset of SARS-CoV-2 infection to the diagnosis of COVID-19. Digital radiology may be a suitable choice to reduce the amount of radiation exposure in children.</td>
<td>In response to Buonsenso et al., the authors maintain a stance in support of radiological diagnosis of moderate COVID-19 disease.</td>
<td>Chen D, Tang F, Lu S, Song Q. Toward a clinically based classification of disease severity for paediatric COVID-19 – Authors’ reply [published online 2020 May 15]. Lancet Infect Dis. doi:10.1016/S1473-3099(20)30936-0</td>
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<td>Pregnancy, maternal and neonatal outcomes, cesarean section, vertical transmission, breastfeeding</td>
<td>15-May-20</td>
<td>Impact of COVID-19 infection on maternal and neonatal outcomes: a review of 287 pregnancies</td>
<td>medRxiv</td>
<td>Preprint (not peer reviewed)</td>
<td>This review identified all articles, without language limitation, on pregnancies affected by COVID-19, between October 2019 and Apr 30, 2020. Within 28 articles identified, data on 287 pregnant women with COVID-19 from 6 countries were assessed. Most pregnant women were in their third trimester, and 102 (35.1%) cases were symptomatic at the time of admission. Common onset symptoms, abnormal laboratory findings, and chest CT patterns were fever (51.5%), lymphocytopenia (67.9%), and multiple ground-glass opacities (78.5%) respectively. 93% of all deliveries were performed via cesarean section. No maternal mortality and 3 % ICU admission were reported. Vertical transmission was not reported but its possibility was suggested in three neonates. One neonatal death, one stillbirth, and one abortion were reported. In 60 cases, where newborn feeding was reported, all newborns were fed with formula.</td>
<td>This review of articles on pregnancy and COVID-19 found minimal adverse maternal and neonatal outcomes. Data are limited on viral transmission in utero, during vaginal childbirth and breastfeeding, as well as the effects of COVID-19 on first and second trimester pregnancies.</td>
<td>Azarkish F, Janghorban R. Impact of COVID-19 infection on maternal and neonatal outcomes: a review of 287 pregnancies [published online 2020 May 15]. medRxiv. doi:10.1101/2020.05.09.2096842</td>
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<td>Childhood, routine vaccine ordering, vaccine-preventable disease, United States</td>
<td>15-May-20</td>
<td>Effects of the COVID-19 Pandemic on Routine Pediatric Vaccine Ordering and Administration—United States, 2020</td>
<td>Morbidity and Mortality Weekly Report</td>
<td>Report</td>
<td>On March 24, the United States CDC posted guidance emphasizing the importance of routine well childcare and immunization, particularly for children aged ≤24 months. Vaccines for Children (VFC) is a national program that provides federally purchased vaccines to approximately 50% of U.S. children (0-18 years). In this report, cumulative doses of VFC-funded vaccines ordered by health care providers at weekly intervals were tallied during two periods: January 7, 2019 to April 21, 2019 and January 6, 2020 to April 19, 2020. Data indicate a notable decrease, beginning the week after the national emergency declaration, in orders for VFC-funded, non-influenza childhood vaccines and measles-containing vaccines between period 2 compared with period 1. The decrease was less prominent among children aged ≥24 months than among older children. Continued coordinated efforts between health care providers and public health officials at the local, state, and federal levels will be necessary to achieve rapid catch-up vaccination.</td>
<td>Declines in routine pediatric vaccine ordering and doses administered, during the COVID-19 pandemic, indicate that U.S. children may face increased risks for outbreaks of vaccine-preventable diseases.</td>
<td>Santoli JM, Lindley MC, DeSilva MB, et al. Effects of the COVID-19 Pandemic on Routine Pediatric Vaccine Ordering and Administration—United States, 2020. MMWR. 2020;69:591–593. doi:10.15585/mmwr.mm6919e2</td>
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<td>Epidemiology, clinical features, Kazakhstan</td>
<td>14-May-20</td>
<td>Epidemiological Characteristics of New Coronavirus Diseases (COVID-19): Features of Risk Factors and Clinical Features of the Child Population</td>
<td>Electronic Journal of General Medicine</td>
<td>Review Article</td>
<td>Since children play a significant role in the spread of SARS-CoV-2, special attention should be paid to how COVID-19 manifests in children. This article summarizes the diagnosis, clinical course and complications, epidemiological history, and clinical manifestations of COVID-19 in children, with an emphasis on cases reported in Kazakhstan where rates of infection in children have been 2.8 times higher. The authors also present risk factors that may help in early detection of critical cases. Children with congenital heart disease, bronchopulmonary dysplasia, respiratory tract defects, anemia/abnormal hemoglobin levels, severe malnutrition, immunodeficiency, or treated with immunosuppressive therapy for a long time should be considered especially high risk. The following symptoms should be early indicators of severe COVID-19: Shortness of breath (&gt; 60 per minute for children 0-2 months; &gt; 50 per minute for 2-12 months; &gt; 40 per minute for 1-5 years), decreased O2 saturation (&lt;92%), fever over 3-5 days, lethargy, increasing blood enzymes (hepatic, myocardial, LDH, etc), unexplained metabolic acidosis, changes in chest x-ray, co-infection, organ malfunction, or if the child is &lt; 3 months.</td>
<td>This article summarizes the diagnosis, clinical course and complications, epidemiological history, and clinical manifestations of COVID-19 in children, with an emphasis on cases reported in Kazakhstan. The authors also present risk factors that may help in early detection of critical cases.</td>
<td>Kemelbekov K, Ospanova E, Baimakhanova B, et al. Epidemiological Characteristics of New Coronavirus Diseases (COVID-19): Features of Risk Factors and Clinical Features of the Child Population. Electron J Gen Med. 2020;17(6). em252. <a href="https://doi.org/10.29333/ejgm/8268">https://doi.org/10.29333/ejgm/8268</a></td>
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<td>Neonatal infection, neonatal care, outcomes research</td>
<td>14-May-20</td>
<td>Caring for Newborns Born to Mothers With COVID-19: More Questions Than Answers</td>
<td>Pediatrics</td>
<td>Commentary</td>
<td>The mechanism of neonatal infection is unclear, and this uncertainty has led to notable variations in care practices for newborns born to mothers with COVID-19. While there is some agreement on certain components of newborn care, such as use of precautions for resuscitation or isolation of exposed infants needing intensive care, approaches to other aspects of care differ widely, including breastfeeding and location of care. The authors note that these differences are more likely driven by differences in balancing risks and benefits rather than differences in resource availability or care environments. The authors note that the Perlman report discussed in the article highlights three needs for research around neonatal care and outcomes related to COVID-19: (1) much larger sample sizes reflecting diverse populations, (2) detailed descriptions of care practices, and (3) follow-up information on maternal and neonatal outcomes after the birth hospitalization.</td>
<td>The authors discuss three needs to address in research around neonatal care and outcomes related to COVID-19: (1) larger and diverse sample sizes, (2) detailed descriptions of care, and (3) follow-up information on maternal and neonatal outcomes.</td>
<td>Gupta M, Zupancic JAF, Pursley DM. Caring for Newborns Born to Mothers With COVID-19: More Questions Than Answers. Pediatrics. 2020;146(2). doi:10.1542/peds.2020-001842</td>
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<td>Children, viral shedding, community transmission, vaccines, vulnerable populations</td>
<td>14-May-20</td>
<td>Understanding COVID-19 in Children May Provide Clues to Protect At-Risk Populations</td>
<td>BMJ Pediatrics Open</td>
<td>Editorial</td>
<td>Since the outbreak of SARS-CoV-2, the vast majority of severe COVID-19 cases globally have occurred in older adults compared with children. It remains unknown whether children with COVID-19 have less severe illness than adults due to a combination of a lower incidence of infection, lower disease severity or both. Viral shedding has been detected in rectal swabs of children even beyond the recovery period, suggesting that transmission through the fecal-oral route is possible, a point likely to be of greater importance in low-income and middle-income countries. Being asymptomatic with high viral load, children may represent a source of community transmission of COVID-19. Due to differences in ACE2 expression and immune function, it is plausible that weaker inflammatory responses in children may prolong virus survival and therefore transmission to older contacts. Identifying any differences between adults and children is essential for the development of an effective vaccine.</td>
<td>Understanding the role children play in community transmission of COVID-19 will help accelerate the development of interventions such as vaccines and other societal measures aimed at protecting vulnerable populations.</td>
<td>Do LAH, Anderson J, Sutton P, Pellicci DG, Mulholland K, Liciardi PV. Understanding COVID-19 in children may provide clues to protect at-risk populations. BMJ Paediatr Open. 2020;4(1):e000070. doi:10.1136/bmjpo-2020-000070</td>
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<td>Pregnancy, newborn triage, preterm birth, delivery room preparedness, New York, USA</td>
<td>14-May-20</td>
<td>Delivery Room Preparedness and Early Neonatal Outcomes During COVID19 Pandemic in New York City</td>
<td>Pediatrics</td>
<td>Review</td>
<td>In this prospective study, all pregnant women admitted to labor and delivery were tested by SARS-CoV-2 PCR, obtained from a nasopharyngeal swab, between March 22 and April 15, 2020 at New York Presbyterian Weill Cornell Medicine. Of 326 deliveries, 31 (9.5%) mothers tested positive for SARS-CoV-2: 15 (48%) were asymptomatic, and 16 (52%) were symptomatic. All newborns initially triaged to the well-baby nursery (n=29) tested negative for SARS-CoV-2 and were breastfed and cared for in the mother's room. Two premature newborns were triaged to the NICU where they received continuous positive pressure ventilation, and after testing negative for SARS-CoV-2, both were moved out of isolation.</td>
<td>The authors stress the importance of awareness of the mother's SARS-CoV-2 status and rapid turnaround of testing in delivery room preparedness.</td>
<td>Pearlman J, Oxford C, Chang C, Salvatore C, Di Pace J. Delivery Room Preparedness and Early Neonatal Outcomes During COVID19 Pandemic in New York City [published online 2020 May 14]. Pediatrics. doi:10.1542/peds.2020-1567</td>
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<td>Neonatal care, isolation, breastfeeding, recommendations, WHO</td>
<td>14-May-20</td>
<td>Caring for Newborns Born to Mothers With COVID-19: More Questions Than Answers</td>
<td>Pediatrics</td>
<td>Commentary</td>
<td>The uncertainty around neonatal SARS-CoV-2 infection risk has led to notable variations in care practices for newborns born to mothers with COVID-19. While there is some agreement, such as use of precautions for delivery room resuscitation or isolation of exposed infants requiring intensive care, approaches to other aspects of care differ widely, including location of care and breastfeeding for term infants that are well and born to mothers without severe symptoms. Recommendations on these areas from several national-level organizations, as well as the WHO, are summarized in this report. Critical and time-sensitive needs for research around neonatal care and outcomes are also outlined: (1) larger sample sizes reflecting diverse populations; (2) descriptions of care practices with ability to assess comparative effectiveness of different approaches; (3) follow-up information on maternal and neonatal outcomes after birth hospitalization.</td>
<td>This report summarizes recommendations for neonatal care, from national and international organizations, and outlines areas for further research.</td>
<td>Gupta M, Zupancic IAF, Pursley DM. Caring for Newborns Born to Mothers with COVID-19: More Questions than Answers [published online 2020 May 14]. Pediatrics. doi:10.1542/peds.2020-001842</td>
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<td>Children, CDC, multisystem inflammatory syndrome, case definition</td>
<td>14-May-20</td>
<td>CDC details COVID-19-related inflammatory syndrome in children</td>
<td>American Academy of Pediatrics</td>
<td>News</td>
<td>In a recent health advisory, the Centers for Disease Control and Prevention (CDC) provided a case definition for a rare but serious multisystem inflammatory syndrome in children (MIS-C) that is linked to COVID-19. Criteria include: an individual under 21 years presenting with fever, laboratory evidence of inflammation and evidence of clinically severe illness requiring hospitalization with multisystem (≥2) organ involvement (cardiac, renal, respiratory, hematologic, gastrointestinal, dermatologic or neurological); no alternative plausible diagnoses; and positive for current or recent SARS-CoV-2 infection by RT-PCR, serology or antigen test; or COVID-19 exposure within the four weeks prior to the onset of symptoms. Clinicians should report suspected cases to their health departments even if the patient also fulfills all or part of criteria for Kawasaki disease. While the CDC did not provide guidance on treatment, a member of the American Academy of Pediatrics Committee on Infectious Diseases has said that IV immunoglobulin and supportive care have been common approaches.</td>
<td>The CDC releases a case definition for multisystem inflammatory syndrome in children, linked to COVID-19.</td>
<td>Jenco M. CDC details COVID-19-related inflammatory syndrome in children [published online 2020 May 14]. AAP News.</td>
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<td>Neonates, NICU preparedness, CDC, New York City</td>
<td>14-May-20</td>
<td>Neonatal Intensive Care Unit Preparedness for the Novel Coronavirus Disease-2019 Pandemic: A New York City</td>
<td>Current Problems in Pediatric and Adolescent Health Care</td>
<td>Full Length Article</td>
<td>There are limited data on the effect of COVID-19 in fetal life, and among neonates after birth. Therefore, there is an urgent need for proactive preparation to combat COVID-19 and safeguard patients, families, and healthcare personnel. This review article is based on the Centers for Disease Control and Prevention's (CDC) current recommendations for COVID-19 and its adaptation to local resources at a hospital in New York City. This article aims to provide basic consolidated guidance and checklists for clinicians in neonatal intensive care units. Recommendations consider risk of vertical transmission, preparation before delivery, preparation in the delivery room,</td>
<td>This article consolidates guidance on NICU preparedness for the COVID-19 pandemic, based on CDC recommendations and experience at a New York City hospital.</td>
<td>Verma S, Lumba R, Lighter JL, et al. Neonatal Intensive Care Unit Preparedness for the Novel Coronavirus Disease-2019 Pandemic: A New York City Hospital Perspective [published online 2020 May 14]. Curr Probl Pediatr Adolesc</td>
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<td>Pregnancy, neonatal infection, vertical transmission, placental pathology, Canada</td>
<td>14-May-20</td>
<td>Probable Congenital SARS-CoV-2 infection in a Neonate Born to a Woman With Active SARS-CoV-2 Infection</td>
<td>Canadian Medical Association Journal</td>
<td>Original Article</td>
<td>A 40-year-old woman (gravida 2, para 1) was admitted to a tertiary hospital in Toronto, Ontario with history of gestational diabetes and frequent bacterial infections. The patient presented with myalgia, decreased appetite, fatigue, dry cough, and fever. A nasopharyngeal swab was positive for SARS-CoV-2 via RT-PCR testing. The woman did not need any respiratory support at the time of birth. A semi-urgent cesarean delivery was performed owing to worsening coagulopathy and reducing platelet count. Delayed cord clamping was not performed, and the neonate was immediately separated. All 3 nasopharyngeal swabs, obtained from the neonate on the day of birth, day 2, and day 7 were positive for SARS-CoV-2; neonatal plasma tested positive on day 4, and stool was positive on day 7. At 36 hours of age, repeated episodes of hypoglycemia and feeding difficulties necessitated the newborn’s admission to the NICU. He was transferred back to his mother’s room, and both were discharged home on day 4 after birth. On histopathologic examination, the placenta showed multiple areas of infiltration by inflammatory cells, consistent with chronic histiocytic intervillositis, and extensive early infarction. Placental swabs (both maternal and fetal sides) and breast milk also tested positive for SARS-CoV-2. The authors stated that the potential for respiratory secretion contamination of breast milk cannot be ruled out but was minimized by breast hygiene and cleaning before specimen collection. This case presents evidence of possible congenital transmission of SARS-CoV-2, with positive placental and breast milk findings described. The mother and newborn did not suffer any complications from COVID-19.</td>
<td>Kirtsmann M, Diambomba Y, Poutanen SM, et al. Probable congenital SARS-CoV-2 infection in a neonate born to a woman with active SARS-CoV-2 infection [published online 2020 May 14]. CMAJ. doi:10.1503/cmaj.200821</td>
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<td>Pediatric care centers, pandemic preparedness, health systems strengthening, resource-limited settings</td>
<td>14-May-20</td>
<td>Strengthening Health Systems and Improving the Capacity of Pediatric Care Centers to Respond to Epidemics Such as COVID-19 in Resource-limited Settings</td>
<td>Journal of Tropical Pediatrics</td>
<td>Editorial</td>
<td>The authors argue that existing pandemic preparedness plans do not adequately address the special needs of children, particularly those in resource-limited settings; the relatively low hospitalization and death rates of children in the COVID-19 pandemic may result in the continuation of those needs being overlooked. This editorial proposes recommendations for health systems strengthening to improve the capacity of pediatric care centers to respond to the COVID-19 pandemic, which may help systems better manage future outbreaks.</td>
<td>This article outlines areas for health systems strengthening to improve pediatric epidemic and pandemic preparedness.</td>
<td>Collins EM, Tam PI, Trehan I, et al. Strengthening Health Systems and Improving the Capacity of Pediatric Care Centers to Respond to Epidemics Such as COVID-19 in Resource-limited Settings [published online 2020 May 14]. J Trop Pediatr. doi:10.1093/tropej/fmaa028</td>
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<td>Pediatric dialysis unit, health care workers, asymptomatic, subclinical seroconversion, Indiana, USA</td>
<td>14-May-20</td>
<td>Asymptomatic Seroconversion of Immunoglobulins to SARS-CoV-2 in a Pediatric Dialysis Unit</td>
<td>JAMA</td>
<td>Research Letter</td>
<td>This study describes SARS-CoV-2 seroconversion in 13 patients and 25 health care workers (9 dialysis nurses, 2 nurse practitioners, 4 staff, and 10 physicians) in a freestanding outpatient pediatric hemodialysis unit at Riley Hospital for Children, Indiana. Serial SARS-CoV-2 IgM and IgG antibody levels were measured on sera from whole blood samples on days 7, 14, and 21 (April 1 - April 15, 2020). One week before the study began, a single patient tested positive for SARS-CoV-2 on nasopharyngeal RT-PCR and was subsequently dialyzed in an isolation room. Between day 0 and day 7, 2 health care workers had negative PCR test results despite upper respiratory tract symptoms and fevers. One of these health care workers subsequently seroconverted on day 21 despite 3 negative PCR results. By day 21, 11 of 25 health care workers (44%) and 3 of 13 patients (23%) had positive SARS-CoV-2 antibodies; none developed symptoms between days 7 and 21. No health care workers who directly cared for the single PCR-positive patient seroconverted. The 1 symptomatic, PCR-positive patient may have been the source of spread, but other health care environment or community transmission cannot be ruled out.</td>
<td>This study found a high prevalence of subclinical seroconversion of SARS-CoV-2 antibodies in patients and health care workers interacting in a pediatric dialysis unit.</td>
<td>Hains DS, Schwaderer AL, Carroll AE, et al. Asymptomatic Seroconversion of Immunoglobulins to SARS-CoV-2 in a Pediatric Dialysis Unit [published online 2020 May 14]. doi:10.1001/jama.2020.8438</td>
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<td>Pregnancy, birth, doula, maternity care, United States</td>
<td>14-May-20</td>
<td>Pregnancy, Birth and the COVID-19 Pandemic in the United States</td>
<td>Medical Anthropology</td>
<td>Article</td>
<td>In this article, the authors ask, how quickly and in what ways are US maternity care practices changing due to the COVID-19 pandemic? Data indicate that partners and doulas are being excluded from birthing rooms leaving mothers unsupported, while providers face lack of protective equipment and unclear guidelines. The authors investigate rapidly shifting protocols for in- and out-of-hospital births and the decision making behind them. They argue that this pandemic may offer a testing ground for future policy changes to generate effective maternity care amidst pandemics and other types of disasters.</td>
<td>This article considers the changes in birth practices that have occurred in the United States as a result of the COVID-19 pandemic.</td>
<td>Davis-Floyd R, Gutschow K, Schwartz DA. Pregnancy, Birth and the COVID-19 Pandemic in the United States [published online 2020 May 14]. Med Anthropol. doi:10.1080/01459740.2020.1761804</td>
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<td>Key Terms</td>
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<td>Infant, cell culture isolation, electron microscopy, Italy</td>
<td>14-May-20</td>
<td>SARS-CoV-2 infection diagnosed only by cell culture isolation before the local outbreak in an Italian seven-week-old suckling baby 35</td>
<td>International Journal of Infectious Diseases</td>
<td>Case Report</td>
<td>This paper describes the case of a 7-week-old suckling infant from Italy, with no clinical suspicion of and/or risk factors for SARS-CoV-2 infection, who presented with signs of upper respiratory tract infection. No viruses were detected using both immunofluorescence assay and nucleic acid amplification assays on the nasopharyngeal aspirate sample. The infant was discharged in good condition after 3 days of hospitalization. Later, a cytopathic effect on the cell monolayers currently used for respiratory viruses was observed, and the viral particles were identified as Coronavirus by transmission electron microscopy. SARS-CoV-2 was identified by RT-PCR performed both on cell culture and on the stored aliquot of the original sample.</td>
<td>In this case of a 7-week-old infant with SARS-CoV-2 infection, only culture isolation allowed the identification of the cytopathogenic agent and remains the only reference method for emerging viruses.</td>
<td>Calderaro A, Arcangeliotti MC, De Conto F, et al. SARS-CoV-2 infection diagnosed only by cell culture isolation before the local outbreak in an Italian seven-week-old suckling baby [published online 2020 May 14]. Int J Infect Dis. 2020;96:387-389. doi:10.1016/j.ijid.2020.05.035</td>
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<td>Placenta tissue, visualization, ACE2, vertical transmission, pregnancy</td>
<td>13-May-20</td>
<td>Visualization of severe acute respiratory syndrome coronavirus 2 invading the human placenta using electron microscopy</td>
<td>American Journal of Obstetrics and Gynecology</td>
<td>Case Report</td>
<td>The risk of vertical transmission of SARS-CoV-2 from infected pregnant women to their fetuses is controversial - recent studies have provided evidence that it is a possibility. This case detailed the rapid clinical deterioration caused by pneumonia secondary to COVID-19 of a woman at 28 weeks gestation. The patient presented with elevated D-dimer and increasing dependence on oxygen requirements, and the decision was made to proceed with delivery to optimize maternal treatment and decrease fetal morbidity. The infant tested negative for the virus. Electron microscopy was used to evaluate potential viral transmission, revealing visualized and identified coronavirus virions invading into the syncytiotrophoblasts in the placental villi, the first visualization of SARS-CoV-2 in the human placenta. Placental tissue contains ACE2 receptors, the receptor that SARS-CoV-2 uses to enter cells, further supporting the evidence that placental infection with SARS-CoV-2 is plausible. The authors hypothesize based on this information that vertical transmission is possible but assert that further studies are needed to confirm.</td>
<td>This is the first reported case of visualization of viral infection of placental tissue, providing vital evidence that placental tissue infection with SARS-CoV-2 is possible. This case supports the hypothesis that vertical transmission from mother to fetus is possible.</td>
<td>Algarroba GN, Rekawek P, Vahanian SA, et al. Visualization of severe acute respiratory syndrome coronavirus 2 invading the human placenta using electron microscopy. Am J Obstet Gynecol. 2020;223(2):275-278. doi:10.1016/j.ajog.2020.05.023</td>
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<td>Pregnancy, management, prone positioning, France</td>
<td>13-May-20</td>
<td>Prone positioning and high-flow oxygen improved respiratory function in a 25-week pregnant woman with COVID-19</td>
<td>European Journal of Obstetrics and Gynecology and Reproductive Biology</td>
<td>Correspondence</td>
<td>The authors describe the clinical course and management of a 25-week pregnant woman with COVID-19. During 4 days in the ICU, positional therapy that alternated prone positioning with lateralization was utilized to increase her oxygen saturation while remaining on high-flow nasal oxygen, without sedation or invasive ventilation. They included her hemodynamic and arterial blood gas parameters before, during, and after prone positioning. The patient was able to return home still pregnant 24 days after the onset of the disease. Combining prone positioning with high-flow nasal oxygen could be a useful treatment strategy for avoiding intubation in pregnant women, but further studies are needed, particularly for treating acute respiratory failure in this specific population.</td>
<td>The authors present a case of a pregnant woman with COVID-19 whose condition and pregnancy were managed effectively by prone positioning without sedation or invasive ventilation.</td>
<td>Vibert F, Kretz M, Thuet V, et al. Prone positioning and high-flow oxygen improved respiratory function in a 25-week pregnant woman with COVID-19 [published online 2020 May 13]. Eur J Obstet Gynecol Reprod Biol. 2020;250:257-258. doi:10.1016/j.ejogrb.2020.05.022</td>
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<td>Children, Kawasaki Disease, hyperinflammatory syndrome, causality</td>
<td>13-May-20</td>
<td>COVID-19 and Kawasaki Disease: Finding the Signal in the Noise</td>
<td>Hospital Pediatrics</td>
<td>Editorial</td>
<td>Attention over the possible association between COVID-19 and Kawasaki Disease (KD) and other hyperinflammatory states in children has mounted. Two key questions emerge: Are the associations causal? If they are in fact causal, to what extent do the associations inform care? While it is still early, the patterns that appears to be quite similar across multiple cities certainly points towards a causal association. However, any contribution of COVID-19 to overall KD incidence might be diluted by the disappearance of infectious reservoirs at school and daycare and apprehension about pursuing medical care due to fear of contagious exposure. If the association is in fact causal, then manifestations, outcomes, and responses to treatment may differ for COVID-associated KD as compared to other types of KD; additionally, there may be a separate hyperinflammatory syndrome distinct from the classic KD that occurs following recovery from acute SARS-CoV-2 infection. On the other hand, potential negative consequences of dissemination of this positive association include misdiagnosis of KD and overtreatment.</td>
<td>Given the potential for misattributions of causality, emerging data on COVID-19-associated Kawasaki Disease in children must be interpreted carefully and aggregated to create an evidence base for diagnosis and treatment.</td>
<td>Schroeder AR, Wilson KM, Ralston SL. COVID-19 and Kawasaki Disease: Finding the Signal in the Noise [published online 2020 May 13]. Hosp Pediatr. doi:10.1542/hpeds.2020-000356</td>
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<tr>
<td>Adolescent, eosinophilic myocarditis, autopsy, histological findings, Louisiana, USA</td>
<td>13-May-20</td>
<td>Fatal Eosinophilic Myocarditis in a Healthy 17-Year-Old Male With Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)</td>
<td>Fetal and Pediatric Pathology</td>
<td>Original Article</td>
<td>Cardiac damage is frequently referenced in patients with SARS-CoV-2, usually diagnosed by enzyme elevations, and is generally thought to be due to underlying coronary artery disease. There are references to cardiomyopathies accompanying coronavirus, but there has been no histologic confirmation. In this case report, a previously healthy 17-year-old, African American male presented in full cardiac arrest to the emergency department after a 2-day history of headache, dizziness, nausea, vomiting, fever, and hypoxia. Autopsy demonstrated an enlarged flabby heart with eosinophilic myocarditis. There was no interstitial pneumonia or diffuse alveolar damage. Postmortem nasopharyngeal swabs detected SARS-CoV-2; no other cause for the eosinophilic myocarditis was elucidated.</td>
<td>Pathologic examinations and autopsy findings are discussed in this case report of a 17-year-old boy who died due to fulminant myocarditis associated with SARS-CoV-2 infection.</td>
<td>Craver R, Huber S, Sandomirsky M, McKenna D, Schieffelin J, Finger L. Fatal Eosinophilic Myocarditis in a Healthy 17-Year-Old Male with Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) [published online 2020 May 13]. Fetal Pediatr Pathol. doi:10.1080/15513815.2020.1761491</td>
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<tr>
<td>Children, healthcare visits, infectious diseases, injuries, China</td>
<td>13-May-20</td>
<td>Changes in Children’s Healthcare Visits During COVID-19 Pandemic in Hangzhou, China</td>
<td>Journal of Pediatrics</td>
<td>Case Report</td>
<td>Lower-than-expected rates of children affected by COVID-19 do not mean that there was no impact on children’s health. Using data on pediatric healthcare visits before and after the COVID-19 outbreak and historical data, this report identifies pediatric conditions that were most affected by the pandemic and epidemic control measures in Hangzhou, Zhejiang Province, China. Coinciding with the implementation of social distancing restrictions, the daily number of pediatric visits after January 25, 2020 fell to about one quarter of visits during the same period in 2019. Most decreases in visits were for other infectious diseases, such as respiratory syncytial virus infection, influenza, infectious diarrhea, otitis externitis, and hand foot mouth disease. In contrast, the number of visits for injuries rose significantly, especially indoor injuries.</td>
<td>Healthcare visits for common pediatric conditions were substantially decreased during the implementation of pandemic control measures in Hangzhou, China, compared to the same period in 2019.</td>
<td>Li H, Yu G, Duan H, Fu J, Shu Q, Changes in Children’s Healthcare Visits During COVID-19 Pandemic in Hangzhou, China [published online 2020 May 13]. J Pediatr. doi:10.1016/j.jpeds.2020.05.013</td>
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<tr>
<td>Child, renal transplantation, immunosuppression,</td>
<td>13-May-20</td>
<td>Mild COVID-19 in a Pediatric Renal Transplant Recipient</td>
<td>American Journal of Transplantation</td>
<td>Case Report</td>
<td>This case reports a 13-year-old child with multiple comorbidities who acquired COVID-19 five years post-renal transplantation (RT) in the United States. Maintenance immunosuppression (IS) consisted of sirolimus and mycophenolate. There was no history of travel or exposure to sick contacts. The presenting features were fever, cough, rhinorrhea and hypoxemia. This report provides a brief perspective on the short-term COVID-19 clinical course in an</td>
<td>Bush R, Johns F, Acharya R, Upadhyaay K. Mild COVID-19 in a pediatric renal transplant recipient [published online 2020 May 00:01]</td>
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**COVID-19, Maternal and Child Health, Nutrition – Literature Repository**

May 2020
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<th>Key Terms</th>
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<td>Disease, Italy</td>
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<td>Diarrhea was the only extra pulmonary manifestation. Chest x-ray was normal. He did not require intensive care or ventilation. There was a transient rise in his serum creatinine without change in urine output; dialysis was not required. Slight reduction in IS was initiated. He had excellent clinical recovery within four days and was able to be discharged home. His respiratory symptoms resolved, but the diarrhea persisted during a 4-week follow-up period.</td>
<td>Immunosuppressed child.</td>
<td>13. Am J Transplant. doi:10.1111/ajt.16003</td>
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<td>Children, neuro-</td>
<td>13-May-20</td>
<td>Neurotropic Mechanisms in COVID-19 and Their Potential Influence on Neuropsychological Outcomes in Children</td>
<td>Child Neuro-psychology</td>
<td>Review Article</td>
<td>This article represents an initial attempt to understand the potential ramifications of COVID-19 in children referred for neuropsychological assessment. Children have shown more physical resilience to COVID-19 than adults, but there is a cohort of vulnerable infants and young children who may experience disease burden, both in the acute phase and chronically. Concern about children is based on the knowledge that coronaviruses can affect the developing nervous systems of infants, children, and adolescents. Preliminary hypotheses concerning neurotropic factors have been documented by researchers. Children with COVID-19 and comorbid physical or mental disorders may be vulnerable to exacerbations of neurotropic factors and comorbidities.</td>
<td>Based on previous knowledge of neurotropic mechanisms in other coronaviruses, this article explores concerns related to neuropsychological ramifications of COVID-19 in children.</td>
<td>Condie LO. Neurotropic mechanisms in COVID-19 and their potential influence on neuropsychological outcomes in children [published online 2020 May 13]. Child Neuropsychol. doi:10.1080/09297049.2020.1763938</td>
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<td>Neuropathology, comorbidities, neurotropic</td>
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<td>Children, feeding</td>
<td>13-May-20</td>
<td>A Case Series of the 2019 Novel Coronavirus (SARS-CoV-2) in Three Febrile Infants in New York</td>
<td>Pediatrics</td>
<td>Case Report</td>
<td>This case report describes three febrile infants, less than two months of age, admitted to a large, tertiary care children's hospital in New York and subsequently found to be infected with SARS-CoV-2. All three patients presented with fever, feeding difficulty, lymphopenia, and thrombocytosis on laboratory evaluation. Two of the three patients were found to have neutropenia and two had known exposures to sick contacts. All patients had unremarkable hospital courses; two required intravenous fluid support due to poor feeding. All were discharged without complications.</td>
<td>To the authors' knowledge, this report describes three of the youngest patients to be reported with SARS-CoV-2 in the United States.</td>
<td>Feld L, Belfer J, Kabra R, et al. A Case Series of the 2019 Novel Coronavirus (SARS-CoV-2) in Three Febrile Infants in New York [published online, 2020 May 13]. Pediatrics. doi:10.1542/peds.2020-1056</td>
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<td>difficulty, New York</td>
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<td>Pregnancy and therapeutic drug trials,</td>
<td>13-May-20</td>
<td>Consider pregnancy in COVID-19 therapeutic drug and vaccine trials</td>
<td>The Lancet</td>
<td>Correspondence</td>
<td>Early data regarding favorable pregnancy outcomes in COVID-19 are reassuring. However, pregnant women remain at risk of severe disease, and they deserve equity in access to therapeutic options informed by rigorous scientific data. There are currently more than 300 trials exploring therapeutics for COVID-19, yet near universal exclusion of pregnant women, despite many of these trials repurposing drugs already widely, and safely, used in pregnancy. Moreover, vaccination in pregnancy protects the mother, fetus, and newborn. This tripling of benefit means rapid vaccine development must allow pregnant women safe and timely inclusion in vaccine trials.</td>
<td>The authors argue for the safe inclusion of pregnant women in clinical trials for COVID-19 therapeutics and vaccines.</td>
<td>Whitehead CL, Walker SP. Consider pregnancy in COVID-19 therapeutic drug and vaccine trials [published online 2020 May 13]. Lancet. doi:10.1016/S0140-6736(20)31029-1</td>
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<td>inclusion criteria</td>
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<td>Children, Kawasaki-like disease, Italy</td>
<td>13-May-20</td>
<td>An outbreak of severe Kawasaki-like disease at the Italian epicenter of the SARS-CoV-2 epidemic: an observational cohort study</td>
<td>The Lancet</td>
<td>Article</td>
<td>At a center in Bergamo province, Italy, all patients diagnosed with a Kawasaki-like disease in the past 5 years were divided according to symptomatic presentation before (group 1) or after (group 2) the beginning of the SARS-CoV-2 pandemic. Group 1 comprised 19 patients (7 boys, 12 girls; mean age 3.0 years [SD 2.5]) diagnosed between January 1, 2015, and February 17, 2020. Group 2 included ten patients (7 boys, 3 girls; aged 7.5 years [SD 3.5]) diagnosed between February 18 and April 20, 2020; two of ten were SARS-CoV-2 positive on nasopharyngeal and oropharyngeal swab; eight of ten were positive for SARS-CoV-2 IgG or IgM, or both. The two groups differed in disease incidence (group 1 vs group 2, 0.3 vs 10 per</td>
<td>In the past month, a center in Italy found a 30-fold increase in incidence of Kawasaki-like disease. Similar outbreaks of Kawasaki-like disease are expected in other countries involved in</td>
<td>Verdoni L, Mazza A, Gervasoni A, et al. An outbreak of severe Kawasaki-like disease at the Italian epicentre of the SARS-CoV-2 epidemic: an observational cohort study [published online 2020 May 13]. Lancet.</td>
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<td>Children, Kawasaki-like disease, inflammatory phenomenon, immune response</td>
<td>13-May-20</td>
<td>Kawasaki-like disease: emerging complication during the COVID-19 pandemic</td>
<td>The Lancet</td>
<td>Comment</td>
<td>Attention has recently shifted to the vulnerability of children to COVID-19 for two reasons. First, the degree to which children transmit COVID-19 is key to how countries reopen communities after lockdown. Second, new concerns about a novel severe Kawasaki-like disease in children related to COVID-19 have arisen; including the description by Verdoni et al. of an outbreak in Italy. Kawasaki disease is a rare acute pediatric vasculitis, with coronary artery aneurysms as its main complication. The diagnosis is based on the presence of persistent fever, exanthema, lymphadenopathy, conjunctival injection, and changes to the mucosa and extremities; there is no diagnostic test. Understanding this inflammatory phenomenon in children might provide vital information about immune responses to SARS-CoV-2 and possible correlates of immune protection with relevance for both adults and children.</td>
<td>This commentary responds to the article by Verdoni et al. on Kawasaki-like disease in children related to COVID-19; understanding this inflammatory phenomenon may provide useful information about immune responses to SARS-CoV-2.</td>
<td>Viner RM. Kawasaki-like disease: emerging complication during the COVID-19 pandemic [published online 2020 May 13]. Lancet. doi:10.1016/S0140-6736(20)31129-6</td>
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<td>Children, immunosuppressive therapy, clinical course, pediatric nephrology center</td>
<td>13-May-20</td>
<td>The severity of COVID-19 in children on immunosuppressive medication</td>
<td>The Lancet Child &amp; Adolescent Health</td>
<td>Correspondence</td>
<td>The authors are currently managing an ongoing survey that includes children aged 0–19 years with kidney disease on immunosuppressive medication who are diagnosed with COVID-19. Within 6 weeks after March 15, 2020, 18 children (median age 11.5 years, range 6-14 years) from 16 pediatric nephrology centers across 11 countries (Spain, Switzerland, China, UK, Germany, France, Sweden, Colombia, USA, Iran, and Belgium) were recorded. Common symptoms included fever (13/18), cough (11/18), rhinitis (5/18), and diarrhea (3/18). 1 child (6%) received high-flow nasal cannula oxygen, and 2 (11%) received supplemental face mask oxygen. These data from a small number of children suggest that even children receiving immunosuppressive treatment for various indications appear to have a mild clinical course of COVID-19.</td>
<td>Data from a small cohort of pediatric patients at nephrology centers suggest that even children receiving immunosuppressive treatment for various indications appear to have a mild clinical course of COVID-19.</td>
<td>Marfais M, Wlodkowski T, Vivarelli M, et al. The severity of COVID-19 in children on immunosuppressive medication [published online 2020 May 13]. Lancet Child &amp; Adolescent Health. doi:10.1016/S2352-4642(20)30145-0</td>
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<td>Childhood vaccination, BCG, case positivity rate, Israel</td>
<td>13-May-20</td>
<td>SARS-CoV-2 Rates in BCG-Vaccinated and Unvaccinated Young Adults</td>
<td>JAMA</td>
<td>Research Letter</td>
<td>Confirmed cases of COVID-19 and case-fatality rates may vary between countries based on national policies regarding childhood BCG vaccination, with fewer confirmed cases and a lower death toll reported in countries with vs without universal BCG vaccine coverage. In Israel, of 72,060 test results reviewed at a medical center, 3,064 were from patients born between 1979 and 1981 (1.02% of birth cohort of that period; 49.2% male; mean age, 40 years) and 2,869 were among likely unvaccinated people born between 1983 and 1985 (0.96% of total birth cohort; 50.8% male; mean age, 35 years). There was no statistically significant difference in the proportion of positive test results for COVID-19 in the BCG-vaccinated group (361 [11.7%]) vs the unvaccinated group (299 [10.4%]); difference, 1.3%; 95% CI, -0.3% to 2.9%; P = 0.9). There was 1 case of severe COVID-19 in each group, and no deaths were reported.</td>
<td>In this cohort of Israeli adults, BCG vaccination in childhood was associated with a similar rate of positive test results for SARS-CoV-2 compared with no vaccination.</td>
<td>Hamiel U, Kozer E, Youngster I. SARS-CoV-2 Rates in BCG-Vaccinated and Unvaccinated Young Adults [published online 2020 May 13]. JAMA. doi:10.1001/jama.2020.8189</td>
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<td>Children, transmission, school closure, social</td>
<td>13-May-20</td>
<td>School Closure During the Coronavirus Disease 2019 (COVID-19)</td>
<td>JAMA Pediatrics</td>
<td>Viewpoint</td>
<td>Most attempts to reduce SARS-CoV-2 transmission have been based on restrictive social distancing measures, like school closures. Modeling studies indicate that school closure can be effective for infection control only when outbreaks are due to viruses with low transmissibility and attack rates are higher in children than in adults, which applies to influenza but not corona-</td>
<td>The authors criticize the usefulness of school closure in reducing COVID-19 transmission and highlight the</td>
<td>Esposito S, Principi N. School Closure During the Coronavirus Disease 2019 (COVID-19) Pandemic: An Effective Intervention at the</td>
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<td>distancing measures</td>
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<td>Pandemic An Effective Intervention at the Global Level?</td>
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<td>viruses. The poor relevance of this restrictive measure seems confirmed by evidence in countries, like Taiwan, where school closures did not contribute to control of the COVID-19 spread. While the efficacy of school closure is debatable, the potential negative consequences of this measure cannot be ignored and risk deepening social, economic, and health inequities.</td>
<td>potential negative consequences of this measure.</td>
<td>Global Level? [published online 2020 May 13]. JAMA Pediatr. doi:10.1001/jamapediatrics.2020.1892</td>
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<td>Children, young adults, comorbidities, Washington DC</td>
<td>13-May-20</td>
<td>Severe COVID-19 in Children and Young Adults in the Washington, DC Metropolitan Region</td>
<td>The Journal of Pediatrics</td>
<td>Brief Report</td>
<td>This observational retrospective cohort study included 177 children and young adults (median age 9.6 years, range 0.1-34.2 years) with clinical symptoms and laboratory confirmed SARS-CoV-2 infection treated between March 15 and April 30, 2020 at the Children's National Hospital, in Washington DC. 44/177 patients (25%) required hospitalization, of which 35/44 (20%) were critically ill and 9/44 (20%) were critically ill. Although all age groups were infected with SARS-CoV-2, the youngest (&lt;1 year) and oldest children/young adults (15-25 years of age) were more likely to be hospitalized, and the oldest were the most likely to require critical care. Underlying conditions were also present in 39% of patients with SARS-CoV-2 infection overall but overrepresented in hospitalized and critically ill patients. Co-infection was not detected in 94% of patients in this study.</td>
<td>In this cohort from Washington DC, all age groups were infected with SARS-CoV-2, but those &lt;1 year and between 15-25 years were more likely to be hospitalized.</td>
<td>DeBiasi RL, Song X, Delaney M, et al. Severe COVID-19 in Children and Young Adults in the Washington, DC Metropolitan Region [published online 2020 May 13]. J Pediatr. doi:10.1016/j.jpeds.2020.05.007</td>
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<tr>
<td>Pregnancy, acute kidney injury, neonate, Iran</td>
<td>13-May-20</td>
<td>Acute Kidney Injury in Pregnant Women Following SARS-CoV-2 Infection: A Case Report From Iran</td>
<td>Respiratory Medicine Case Reports</td>
<td>Case Report</td>
<td>In this case report, a 33-year-old woman (34 weeks’ gestation) was referred to a treatment clinic in Tabriz, Iran, where she tested positive for SARS-CoV-2 on nasopharyngeal RT-PCR test. The patient did not receive any nephrotoxic drugs before uremia, increased blood urea nitrogen, and increased creatinine levels were detected and diagnosed as acute kidney injury. In urine sedimentation, many granular casts and cellular debris were interpreted as acute tubular necrosis (ATN). A chest CT showed ground glass opacity with consolidation in the upper right lobe. After the patient’s respiratory rate increased, she was intubated and underwent cesarean section, delivering a neonate who tested negative for SARS-CoV-2. The patient was weaned off mechanical ventilator support, and ATN resolved.</td>
<td>This case report presents a rare case of acute kidney injury in a pregnant woman with confirmed SARS-CoV-2 infection in Iran. The neonate was born without complications and tested negative for SARS-CoV-2.</td>
<td>Taghizadeh A, Mikaeili H, Ahmadi M, Valizadeh H. Acute kidney injury in pregnant women following SARS-CoV-2 infection: A case report from Iran [published online 2020 May 13]. Respir Med Case Rep. doi:10.1016/j.rmed.2020.10.1090</td>
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<td>Children, cancer, screening, New York City</td>
<td>13-May-20</td>
<td>COVID-19 in Children With Cancer in New York City</td>
<td>JAMA Oncology</td>
<td>Research Letter</td>
<td>Starting in mid-March 2020, the Memorial Sloan Kettering Cancer Center (MSK) instituted a screening plan to mitigate COVID-19 risk. Of the 178 pediatric patients (107 male, 71 female) tested (mean [SD] age 11.1 [8.5] years), 20 (11.2%) had positive test results (mean [SD] age 15.9 [6.6] years). Of patients specifically tested for positive screening or symptoms, the rate of positivity for SARS-CoV-2 was 29.3%. In the 120 asymptomatic patients without known exposure, the rate of SARS-CoV-2 positivity was only 2.5% (29.3%; 95% CI, 18.1%-42.7% versus 2.5%; 95% CI, 0.5%-7.1%; P&lt;.001). Of the 20 patients who tested positive for SARS-CoV-2, only 3 were female, a significant sex skewing when compared with pediatric patients who tested</td>
<td>This report from New York City suggests that pediatric patients with cancer may not be more vulnerable than other children to infection or morbidity from SARS-CoV-2.</td>
<td>Boulad F, Kamboj M, Bouvier N, Mauguen A, Kung AL. COVID-19 in Children With Cancer in New York City [published online 2020 May 13]. JAMA Oncol. doi:10.1001/jamaoncol.2020.0288</td>
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<td>Maternal health, non-communicable diseases, health economics</td>
<td>13-May-20</td>
<td>Maternal Health and Non-Communicable Disease Prevention: An Investment Case for the Post COVID-19 World and Need for Better Health Economic Data</td>
<td>International Journal of Gynecology &amp; Obstetrics</td>
<td>Special Article</td>
<td>An integrated approach to population health, disease surveillance, and preventive care will dominate the health agenda in the post COVID-19 world. Maternal and child health are inextricably linked with non-communicable diseases (NCDs) and their risk factors, since gestational hyperglycemia and macrosomia can impact subsequent generations with obesity, type 2 diabetes, and cardiovascular diseases. The economic cost of poor maternal health and NCD-related pregnancy complications is likely very high but is not adequately researched or documented in the context of long-term population health. Identifying “at-risk” mothers and offspring opens up the opportunity for targeted early preventive action. In reassessing priorities in health after COVID-19, prevention and care of NCDs, especially in pregnant women and children, must be prioritized to improve population health.</td>
<td>Non-communicable diseases are linked with maternal and child health and must be prioritized in post-COVID-19 health agendas.</td>
<td>Kapur A, Hod M. Maternal health and non-communicable disease prevention: An investment case for the post COVID-19 world and need for better health economic data [published online 2020 May 13]. Int J Gynaecol Obstet. doi:10.1002/ijgo.13198</td>
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<td>Children, adolescents, social distancing measures, psychophysical effects, PTSD, Italy</td>
<td>13-May-20</td>
<td>The Psycho-Physical Impact That COVID-19 Has on Children Must Not Be Underestimated</td>
<td>Acta Paediatrica</td>
<td>Brief Report</td>
<td>By April 16, 2020, 159,107 Italian residents had tested positive for COVID-19, including 1,123 children, up to nine years of age (0.7%) and 1,804 adolescents, between 10 and 19 years old (1.1%). Previous studies have shown that posttraumatic stress disorder scores were four times higher in pediatric patients who were quarantined during epidemics or pandemics, than those whose movements were not restricted. Interventions to avoid the risk of physical and psychological repercussions in the pediatric population should encourage parents to be role models of psychophysical health. Additionally, the role of psychologists to support families and teachers to promote motivational messaging are important.</td>
<td>The authors call for interventions to reduce the psychophysical repercussions of the COVID-19 pandemic on pediatric populations.</td>
<td>Pecoraro L, Dalle Carbonare L, De Franceschi L, Piacentini G, Pietrobelli A. The psycho-physical impact that COVID-19 has on children must not be underestimated [published online 2020 May 13]. Acta Paediatr. doi:10.1111/apa.15347</td>
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<td>Neonates, serum antibodies, vertical transmission</td>
<td>13-May-20</td>
<td>Vertical Transmission of Severe Acute Respiratory Syndrome Coronavirus 2: A Systematic Review</td>
<td>American Journal of Perinatology</td>
<td>Short Communication</td>
<td>A total of 22 studies on 83 neonates born to mothers with COVID-19 were included in this systematic review. Among these neonates, three were confirmed with SARS-CoV-2 infection at 16, 36, and 72 hours after birth, respectively, by nasopharyngeal swab RT-PCR tests; another six had elevated virus-specific antibody levels in serum samples collected after birth, but negative RT-PCR test results. However, without positive RT-PCR tests of amniotic fluid, placenta, or cord blood, there is a lack of virologic evidence for intrauterine vertical transmission.</td>
<td>There is currently no direct evidence to support intrauterine vertical transmission of SARS-CoV-2. Further studies on amniotic fluid, placenta, and cord blood are needed.</td>
<td>Yang Z, Liu Y. Vertical Transmission of Severe Acute Respiratory Syndrome Coronavirus 2: A Systematic Review [published online 2020 May 13]. Am J Perinatol. doi:10.1055/s-0040-1712161</td>
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<td>Neonates, NICU ventilators, triage decisions, ethics</td>
<td>13-May-20</td>
<td>Should Extremely Premature Babies Get Ventilators During the COVID-19 Crisis?</td>
<td>The American Journal of Bioethics</td>
<td>Target Article</td>
<td>Triage guidelines differ on whether limited resources should focus on maximizing lives or life-years. Choosing between these two approaches has implications for neonatology. In crisis situations, should neonatal unit guidelines for treating extremely premature newborns be altered to free-up ventilators for adults? Some adults who need ventilators will have a survival rate higher than some extremely premature newborns. However, newborns who survive will likely live longer, maximizing life-years. The authors argue that solidarity must acknowledge the differences between diseases and patient populations. While systematic ethical analyses demonstrate the advantage infants hold in triage, inherent biases place them at a disadvantage. The authors conclude that neonatologists must advocate for systematic and fair consideration of critically ill infants.</td>
<td>This article considers the ethical issue of triage decision-making around ventilator allocation to critically ill newborns and/or adults.</td>
<td>Haward MF, Janvier A, Moore GP, Laventhal N, Fry JT, Lantos J. Should Extremely Premature Babies Get Ventilators During the COVID-19 Crisis? [published online 2020 May 13]. Am J Bioeth. doi:10.1080/15265151.2020.1764134</td>
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For health care and COVID-19 Breastfeeding Asked Questions:

The World Health Organization has published new responses to frequently asked questions regarding COVID-19 and breastfeeding to help providers counsel mothers and families. The key messages include the following: I. Breastfeeding and skin-to-skin contact significantly reduce the risk of death in newborns and young infants and provide immediate and lifelong health and development advantages. Breastfeeding also reduces the risk of breast and ovarian cancer for the mother. II. Newborns and infants are at low risk of COVID-19 infection. Among the few cases of confirmed COVID-19 infection in young children, most have experienced only mild or asymptomatic illness. III. The numerous benefits of breastfeeding substantially outweigh the potential risks of transmission and illness associated with COVID-19. IV. Active COVID-19 has not been detected in the breastmilk of any mother with confirmed/suspected COVID-19 and there is no evidence so far that the virus is transmitted through breastfeeding.

The WHO developed responses to frequently asked questions regarding breastfeeding and COVID-19 and concludes that the benefits of breastfeeding outweigh the potential risks of transmission to the newborn.


Key Terms | Date Published | Title | Journal / Source | Type of Publication | Summary & Key Points | Specific Observations | Full Citation
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School closure, conceptual framework, evidence synthesis, logic model, policy, ethics | 12-May-20 | School closure in response to epidemic outbreaks: Systems-based logic model of downstream impacts | F1000 Research | Research Article | Literature reviews of school closures to date have focused upon epidemiological effects, with less attention paid to other impacts. The authors reviewed 177 studies and policy documents related to school closures caused by epidemics from 1918 to today's COVID-19 pandemic to develop a systems-based logic model. The model organizes impacts of school closures in seven domains: children’s health and well-being, education, parents and families, teachers and staff, school organization, public health, and broader economic impacts. Impacts on children’s health and well-being included loss of school-based services and meals, disrupted vaccination programs, exacerbated inequities, impacts on mental health, and increased risk of abuse, neglect, and exploitation. The model also illustrates moderating factors, ethical considerations, and factors influencing the success of policy implementation. | The authors reviewed 177 studies and policy documents related to school closures caused by epidemics from 1918-2020 to develop a systems-based logic model. This model can be used to frame future research and aid decision-makers when considering the impact of school closures and possible mitigation strategies. | Kneale D, O'Mara-Eves A, Rees R, et al. School closure in response to epidemic outbreaks: Systems-based logic model of downstream impacts [published online, 2020 May 12]. F1000Res. 2020;9:352. doi:10.12688/f1000research.23631.1
Acute pulmonary embolism; Postpartum; CTA; COVID-19 | 12-May-20 | COVID-19 and Acute Pulmonary Embolism in Postpartum Patient | Emerging Infectious Diseases | Research Letter | Approximately half of venous embolism occur during pregnancy and half occur during the postpartum period, with the risk per day greatest in the weeks immediately preceding delivery. Authors in this letter report a 36-year-old woman in Iran who sought care for left shoulder pain and cough 5 days after an elective scheduled C-section. Because of the COVID-19 pandemic and the patient’s report of cough, she was screened for SARS-CoV-2. Thorac CT angiography (CTA) on the first day of hospitalization showed emboli in the right side interlobar artery, posterior basal segment, and the lingual branch. CTA further revealed left-sided pleural effusion associated with new mixed consolidation and ground glass opacifications. Authors conclude that CTA or ultrasonography for deep vein thrombosis may be important for COVID-19–positive pregnant or postpartum patients who have signs or symptoms of possible venous embolism, given their potentially heightened risk. | In a pregnant patient population with an already elevated risk for venous embolism, physicians should be aware of the potential for concurrent mild COVID-19 and acute pulmonary embolism. | Khodamoradi Z, Boogar S, Shirazi F, et al. COVID-19 and Acute Pulmonary Embolism in Postpartum Patient. Emerging Infectious Diseases. 2020;26(8):1937-1939. doi:10.3201/eid2608.201383.
Breastfeeding, transmission risk, WHO, maternal counselling | 12-May-20 | WHO Frequently Asked Questions: Breastfeeding and COVID-19 For health care workers | Journal of Human Lactation | Clinical Recommendations | The World Health Organization has published new responses to frequently asked questions regarding COVID-19 and breastfeeding to help providers counsel mothers and families. The key messages include the following: I. Breastfeeding and skin-to-skin contact significantly reduce the risk of death in newborns and young infants and provide immediate and lifelong health and development advantages. Breastfeeding also reduces the risk of breast and ovarian cancer for the mother. II. Newborns and infants are at low risk of COVID-19 infection. Among the few cases of confirmed COVID-19 infection in young children, most have experienced only mild or asymptomatic illness. III. The numerous benefits of breastfeeding substantially outweigh the potential risks of transmission and illness associated with COVID-19. IV. Active COVID-19 has not been detected in the breastmilk of any mother with confirmed/suspected COVID-19 and there is no evidence so far that the virus is transmitted through breastfeeding. | The WHO developed responses to frequently asked questions regarding breastfeeding and COVID-19 and concludes that the benefits of breastfeeding outweigh the potential risks of transmission to the newborn. | WHO Frequently Asked Questions : Breastfeeding and COVID-19 For health care workers. J Hum Lact. 2020;36(3):392-396. doi:10.1177/0890334420939556
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<td>12-May-20</td>
<td>A Proposed Plan for Prenatal Care to Minimize Risks of COVID-19 to Patients and Providers: Focus on Hypertensive Disorders of Pregnancy</td>
<td>American Journal of Perinatology</td>
<td>Clinical opinion</td>
<td>To minimize unnecessary visits to health care facilities during the COVID-19 pandemic, the authors recommend women should be classified as low risk or high risk for hypertensive disorders of pregnancy and adjustments made accordingly in the frequency of maternal and fetal surveillance. Recommendations include self-monitoring of blood pressure and written instructions on the important signs and symptoms of hypertensive disease progression. As the clinical management of gestational hypertension and pre-eclampsia is the same, assessment of urinary protein necessitating an in-person visit is unnecessary once a diagnosis of a hypertensive disorder of pregnancy is made. Pregnant women with suspected hypertensive disorders of pregnancy and signs and symptoms associated with the severe end of the disease spectrum should have a clinical evaluation. If there is any evidence of disease progression or if acute severe hypertension develops, prompt hospitalization is suggested. Adjustments to the delivery algorithm in the setting of pre-eclampsia with severe features should be considered.</td>
<td>The authors provide specific recommendations for providers managing hypertensive disorders of pregnancy to minimize in-person visits.</td>
<td>Barton JR, Saade GR, Sibai BM. A Proposed Plan for Prenatal Care to Minimize Risks of COVID-19 to Patients and Providers: Focus on Hypertensive Disorders of Pregnancy [published online 2020 May 7]. Am J Perinatol. 2020;37(8):837-844. doi:10.1055/s-0040-1710538</td>
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<td>12-May-20</td>
<td>Telehealth for High-Risk Pregancies in the Setting of the COVID-19 Pandemic</td>
<td>American Journal of Perinatology</td>
<td>Original article</td>
<td>The goals of implementing telehealth were to consolidate in-person prenatal screening, surveillance, and examinations into fewer in-person visits while maintaining patient access to ongoing antenatal care and subspecialty consultations via telehealth virtual visits. The authors queried health workers at Columbia University in the US who were involved in this rapid transition to telehealth and reviewed surveillance and management algorithms to determine how telehealth use was applied to prenatal care. Based on the incorporation of telehealth into prenatal care for high-risk patients, specific recommendations are made for the following conditions, clinical scenarios, and services: (1) hypertensive disorders of pregnancy; (2) pregestational and gestational diabetes mellitus; (3) maternal cardiovascular disease; (4) maternal neurologic conditions; (5) history of preterm birth and poor obstetrical history including prior stillbirth; (6) fetal conditions; (7) genetic counseling; (8) mental health services; (9) obstetric anesthesia consultations; and (10) postpartum care. While telehealth virtual visits do not fully replace in-person encounters during prenatal care, they do offer a means of reducing potential patient and provider exposure to COVID-19 while providing consolidated in-person testing and services.</td>
<td>Telehealth for prenatal care is feasible and may reduce SARS-CoV-2 exposure during prenatal care. This article suggests that telehealth should be tailored for high-risk prenatal patients and provides specific recommendations various conditions, clinical scenarios, and services.</td>
<td>Aziz A, Zork N, Aubey JJ, et al. Telehealth for High-Risk Pregnancies in the Setting of the COVID-19 Pandemic. Am J Perinatol. 2020;37(8):800-808. doi:10.1055/s-0040-1712121</td>
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<td>12-May-20</td>
<td>Clinical Characteristics of S COVID-19 Cases With Non-respiratory Symptoms as the First Manifestation in Children</td>
<td>Frontiers in Pediatrics</td>
<td>Case Report Article</td>
<td>Five patients with non-respiratory symptoms were hospitalized and were later confirmed to have COVID-19, between January 23 and February 20, 2020, at the Wuhan Children’s Hospital (China). Their ages ranged from 2 months to 5.6 years. Primary reasons for admission or presentation to the Emergency Department included intussusception, acute suppurative appendicitis perforation, traumatic subdural hemorrhage with convulsion, and acute gastroenteritis (in two patients). During the course of disease, four patients had a fever. Two patients had leukopenia, and one also had lymphopenia. In the two cases of severe COVID-19, the levels of CRP, PCT, serum ferritin, IL-6, and IL-10 were significantly increased, whereas the numbers of CD3+, CD4+, CD8+ T lymphocytes, and CD16 + CD56 natural killer cells were decreased. There was also evidence for impaired liver, kidney, and myocardial functions.</td>
<td>Five cases of children who presented with non-respiratory symptoms and received later diagnoses of COVID-19 are presented.</td>
<td>Cai X, Ma Y, Li S, et al. Clinical Characteristics of S COVID-19 Cases With Non-respiratory Symptoms as the First Manifestation in Children [published online 2020 May 12]. Front Pediatr. doi:10.3389/fped.2020.00258</td>
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<tr>
<td>12-May-20</td>
<td>Clinical Analysis of 25 Novel Coronavirus Infections in Children</td>
<td>The Pediatric Infectious Disease Journal</td>
<td>Original Studies</td>
<td>In this study, 25 children (median: 11.0 years, range: 0.6-17.0 years) with COVID-19, confirmed by RT-PCR, were admitted to 4 designated treatment hospitals in Chongqing, China from January 19 to March 12, 2020. All children were related to a family cluster outbreak, and 7 children (28%) had a travel or residence history in Hubei Province. Clinical categories included 8 (32%) asymptomatic, 4 (16%) very mild cases and 13 (52%) common cases. No severe or critical cases were identified. The most common symptoms were cough (n=13, 52%) and fever (n=6, 24%). The duration time of clinical symptoms was 13.0 (8.0–25.0) days. There were no statistical differences in lab results between the groups of asymptomatic cases, mild cases and common cases. All patients were treated with interferon, 6 cases combined with Ribavirin, and 12 cases combined with lopinavir or ritonavir. The time from onset to RT-PCR turning negative was 15.20 ± 6.54 days. There was no significant difference of RT-PCR turning negative between the groups of interferon, interferon plus ribavirin and interferon plus lopinavir or ritonavir treatment. All cases recovered and were discharged from hospital.</td>
<td>This study of 25 children with COVID-19 in China found low morbidity as well as non-specific and mild clinical manifestations and inflammatory biomarkers.</td>
<td>Bai K, Liu W, Liu C, et al. Clinical Analysis of 25 Novel Coronavirus Infections in Children [published online 2020 May 12]. Pediatr Infect Dis J. doi:10.1097/INF.0000000000002740</td>
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<td>12-May-20</td>
<td>Placental Pathology in Covid-19 Positive Mothers: Preliminary Findings</td>
<td>Pediatric and Developmental Pathology</td>
<td>Research Article</td>
<td>This study describes the pathology and clinical information on 20 placentas from mothers who tested positive for COVID-19 at Weill Cornell Medical Center. Four women were symptomatic on presentation. No women were admitted to the ICU or intubated, and all neonates were discharged home with negative SARS-CoV-2 RT-PCR tests. Ten of the 20 placental tissues showed some evidence of fetal vascular malperfusion or fetal vascular thrombosis. One case, in which the patient had pneumonia and acute hypoxia, showed evidence of ascending infection with acute chorioamnitis and acute funisitis. Four cases showed chronic villitis, which was high grade in 2 cases. The significance of these findings is unclear. Whether the fetal vascular malperfusion is related to hypercoagulability associated with COVID-19 and whether villitis of unknown etiology is related to an antiviral immune response need further study.</td>
<td>This study of placental pathology in 20 COVID-19 positive mothers found evidence of fetal vascular malperfusion or thrombosis. These findings warrant further study.</td>
<td>Baergen RN, Heller DS. Placental Pathology in Covid-19 Positive Mothers: Preliminary Findings. Pediatr Dev Pathol. 2020;23(3):177-180. doi:10.1177/109352662095569</td>
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<td>12-May-20</td>
<td>COVID-19 in the Pediatric Population Admitted to a Tertiary Referral Hospital in Northern Italy: Preliminary Clinical Data</td>
<td>The Pediatric Infectious Disease Journal</td>
<td>Letter to the Editor</td>
<td>Data from pediatric patients (0-18 years) with COVID-19 admitted to the San Matteo Hospital of the Lombardy region, Italy were collected. As of April 11, 2020, 17 children (median: 4 years, range: 2-10 years) were diagnosed with COVID-19 based on RT-PCR analysis. Patients were stratified into 4 subgroups according to severity of disease: requiring home isolation (n=5), admission to low-intensity care (n=3), sub-intensive care unit (n=8) or ICU (n=1). Compared with the general Lombardy population, these data suggest mild-moderate disease in childhood. Consistently, no child has died so far in Italy.</td>
<td>The authors compare pediatric vs. general population data from the Lombardy region, Italy and conclude that children experience relatively mild-moderate disease.</td>
<td>Brambilla I, Castagnoli R, Caimmi S, Ciprandi G, Luigi Marseglia G. COVID-19 in the Pediatric Population Admitted to a Tertiary Referral Hospital in Northern Italy: Preliminary Clinical Data [published online 2020 May 12]. Pediatr Infect Dis J. doi:10.1097/INF.0000000000002730</td>
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### Key Terms

- COVID-19
- Maternal and Child Health
- Nutrition

### Summary

- COVID-19, Maternal and Child Health, Nutrition – Literature Repository
- May 2020

### Key Points

- **Children, clinical characteristics, inflammatory biomarkers, China**
- **Pregnancy, placental pathology, fetal malperfusion, thrombosis, villitis**
- **Children, general population, disease severity, Italy**
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<tr>
<td>Neonatal infection, encephalitic symptoms, double-peaked course, Germany</td>
<td>12-May-20</td>
<td>Neonatal Early-Onset Infection With SARS-CoV-2 in a Newborn Presenting With Encephalitic Symptoms</td>
<td>The Pediatric Infectious Disease Journal</td>
<td>Letter to the Editor</td>
<td>In this case report, a healthy female newborn of 40 weeks + 3 days of gestation was born by vacuum extraction; she appeared lethargic and developed therapy refractory fever at 24 hours after birth, progressing to encephalitic symptoms at 54 hours of life. Transferred to the tertiary center NICU, the newborn and her mother were isolated; the mother tested positive for SARS-CoV-2. A multiplex-PCR test of 14 meningitis/encephalitis agents was negative in the newborn, and bacterial cultures of cerebrospinal fluid and blood were sterile. Although the newborn's nasopharyngeal and rectal swabs tested positive for SARS-CoV-2, her cerebrospinal fluid tested negative. At 80 hours of life, the newborn developed respiratory distress and needed oxygen therapy until day 6 of life. At day 10, severe cough emerged, and a chest radiograph confirmed bilateral viral pneumonia. The patient's nasopharyngeal and rectal swabs remained positive until 14 days after birth, when she was discharged without symptoms.</td>
<td>To the authors’ knowledge, this is the first report of encephalitic symptoms and a double-peaked course of pulmonary symptoms in a neonate with COVID-19.</td>
<td>Lorenz N, Treptow A, Schmidt S, et al. Neonatal Early-Onset Infection With SARS-CoV-2 in a Newborn Presenting With Encephalitic Symptoms [published online 2020 May 12]. Pediatr Infect Dis J. doi:10.1097/INF.0000000000002735</td>
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<td>Children, chest CT, screening tool, sensitivity, viral pneumonia</td>
<td>12-May-20</td>
<td>Value of Chest CT as COVID 19 Screening Tool in Children</td>
<td>European Respiratory Journal</td>
<td>Research Letter</td>
<td>It is unknown whether CT scanning, involving the introduction of ionizing radiation, has value as a screening tool to rule out COVID-19 infections in children with little or no respiratory symptoms or with negative or missing PCR test results. In this review of existing literature, 92 papers were identified that mostly focused on the use of CT scans in diagnosing and/or monitoring COVID-19 disease, rather than ruling it out, in all ages. Most studies did not include subjects with negative PCR, so the true negative rate or specificity could not be calculated. Depending on the study population, the sensitivity, or the ability of chest CT to detect abnormalities in proven COVID-19 patients, ranged between 44-97% (median 69%). In children specifically, the course of disease is generally milder than in adults. Studies show that chest CT may be normal in 35-50% of pediatric cases with minor upper airway symptoms. Depending on the study, the reported sensitivities of CT scanning to detect abnormalities in pediatric patients ranged between 50-74% (median 60%). This implies an unacceptable percentage of false negative cases. The authors conclude that chest CT, rarely performed in children with viral pneumonia and carrying harm from ionizing radiation, is not suitable for pediatric patients with little or no COVID-19 symptoms.</td>
<td>Based on a review of current literature, the authors conclude that chest CT is not a suitable screening tool to rule out COVID-19 in children with mild or no respiratory symptoms.</td>
<td>Merkus PJ, Klein WM. Value of Chest CT as COVID 19 screening tool in children [published online 2020 May 12]. Eur Respir J. doi:10.1183/13993003.01241-2020</td>
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<td>Indirect mortality, maternal and child health, wasting, modelling study, LMICs</td>
<td>12-May-20</td>
<td>Early estimates of the indirect effects of the COVID-19 pandemic on maternal and child mortality in low-income and middle-income countries: a modelling study</td>
<td>The Lancet Global Health</td>
<td>Original Article</td>
<td>This study estimates the additional maternal and under-5 child deaths in 118 low- and middle-income countries (LMICs) resulting from the potential disruption of health systems and decreased access to food during the COVID-19 pandemic. The least severe scenario (reductions in coverage of essential maternal and child health (MCH) interventions of 9.8–18.5% and wasting prevalence increase of 10%), over 6 months, would result in 253,500 additional child deaths and 12,200 additional maternal deaths. The most severe scenario (coverage reductions of 39.3–51.9% and wasting increase of 50%), over 6 months, would result in 1,157,000 additional child deaths and 56,700 additional maternal deaths. These additional deaths would represent an increase of 9.8–44.7% in under-5 child deaths per month, and an 8.3–38.6% increase in maternal deaths per month, across the 118 countries. Across the modelled scenarios, the reduced coverage of four childhood interventions (parenteral administration of uterotonics, antibiotics, and anticonvulsants, and clean birth environments) would account for</td>
<td>In this modelling study, the authors estimate substantial indirect mortality from the COVID-19 pandemic in LMICs, due to disruptions in essential maternal and child health interventions and access to food, leading to increased, prevalence of wasting, among other conditions.</td>
<td>Robertson T, Carter ED, Chou VB, et al. Early estimates of the indirect effects of the COVID-19 pandemic on maternal and child mortality in low-income and middle-income countries: a modelling study [published online 2020 May 12]. Lancet Glob Health. doi:10.1016/S2214-109X(20)30229-1</td>
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<td>Children, routine health services, social protection, LMICs, UNICEF</td>
<td>12-May-20</td>
<td>A wake-up call: COVID-19 and its impact on children’s health and wellbeing</td>
<td>The Lancet Global Health</td>
<td>Comment</td>
<td>Roberton et al. present startling new evidence on the potential rise in maternal and child mortality in low- and middle-income countries if essential health services are disrupted as a result of COVID-19. Constrained access to clinics, schools, social workers, water, and sanitation is a particular threat to the most vulnerable populations, and the lack of child protection and broader social services is particularly harmful to women and children in need of safety. Looming above all of these concerns is the economic impact of both the pandemic control measures governments are taking and the predicted knock-on effects of the projected global recession. Representing the approach of UNICEF, the author outlines six key areas of action and investment to overcome the negative impacts of the pandemic. Broadly, these address child health and routine services; water, sanitation, and hygiene; digital infrastructure for education; social protection for families; gender-based violence; and refugee and migrant children.</td>
<td>In response to the modelling estimates proposed by Robertson et al., this commentary from UNICEF proposes key areas of focus to overcome the negative impacts of the COVID-19 pandemic on children’s health.</td>
<td>Fore HH. A wake-up call: COVID-19 and its impact on children’s health and wellbeing [published online 2020 May 12], Lancet Glob Health. doi:10.1015/S2214-109X(20)30238-2</td>
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<tr>
<td>Maternal and child health, antenatal care, HIV service delivery, LMICs</td>
<td>12-May-20</td>
<td>Avoiding indirect effects of COVID-19 on maternal and child health</td>
<td>The Lancet Global Health</td>
<td>Comment</td>
<td>In many low-income and middle-income countries (LMICs), COVID-19 is rapidly spreading amid numerous endemic health problems such as HIV, tuberculosis, malaria, and malnutrition, in the context of weak health infrastructures. Roberton et al. report findings from a modelling study to estimate the indirect effects of the COVID-19 pandemic on maternal and child mortality in LMICs. Limitations of their work include applying the same assumptions for the 118 included in the analysis. HIV infection is also excluded from their analysis due to the complexity of service delivery, however as a leading cause of death in women of reproductive age, it should be considered when estimating HIV effects on maternal mortality. Another example of potential indirect effects of the pandemic include changing guidelines, in some African countries, to space out antenatal care (ANC) visits every 3 months instead of monthly. With an average gestational age at first ANC visit of 24 weeks, this recommendation implies that many pregnant women will attend an essential preventive health service only once during their pregnancy.</td>
<td>This commentary highlights limitations of the Robertson et al. modelling study on indirect effects of the COVID-19 pandemic on maternal and child health, while highlighting an additional example of disruptions in antenatal care in some African countries.</td>
<td>Menendez C, Gonzalez R, Donnay F, Leke RGF. Avoiding indirect effects of COVID-19 on maternal and child health [published online 2020 May 12], Lancet Glob Health. doi:10.1015/S2214-109X(20)30239-4</td>
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<tr>
<td>Pregnancy, hospitalization, Black or minority ethnicity, maternal age, obesity, vertical transmission, UK</td>
<td>12-May-20</td>
<td>Characteristics and outcomes of pregnant women hospitalised with confirmed SARS-CoV-2 infection in the UK: a national cohort study using the UK Obstetric Surveillance System (UKOSS)</td>
<td>medRxiv</td>
<td>Preprint (not peer reviewed)</td>
<td>This population-based cohort study uses data from the UK Obstetric Surveillance System (UKOSS) on 427 pregnant women admitted to 194 obstetric units with confirmed SARS-CoV-2 infection between March 1 and April 14, 2020. Estimated incidence of hospitalization with COVID-19 in pregnancy was 4.9 per 1000 maternities (95%CI 4.5-5.4 per 1000). The median gestation at symptom onset was 34 weeks (IQR 29-38 weeks). Black or other minority ethnicity (adjusted OR 4.49, 95%CI 3.37-6.00), older maternal age (aOR 1.35, 95%CI 1.01-1.81 comparing women aged 35+ with those aged 30-34 years), overweight and obesity (aORs 1.91, 95%CI 1.37-</td>
<td>In this UK study, most pregnant women hospitalized with COVID-19 were in the late second or third trimester. Black or minority ethnicity, overweight or obese BMI, older maternal age.</td>
<td>Knight M, Bunch K, Vosden N, et al. Characteristics and outcomes of pregnant women hospitalised with confirmed SARS-CoV-2 infection in the UK: a national cohort study using the UK Obstetric Surveillance System</td>
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<td>Children, food allergy, nutrition, food security</td>
<td>11-May-20</td>
<td>COVID-19 and food allergy in children</td>
<td>Acta Biomedica</td>
<td>Review Article</td>
<td>In this review article, the authors discuss the effects of the COVID-19 pandemic on pediatric patients with food allergies. They provide recommendations for the clinical management of known and new patients with food allergies. The mainstay treatment of this condition is avoidance of the culprit food and selection of “safe” foods. The authors note that accessing specialty allergy products may be more challenging during the current pandemic, which increases the potential risk of exposure to the allergen. They recommend that patients always carry auto-injectable adrenaline and have an updated action plan for prompt recognition and treatment of anaphylaxis. Additionally, they describe the potential impact of the pandemic on the diet and nutritional intake of patients with food allergies. To address this issue, they suggest that pediatric allergy patients should be regularly re-evaluated and have a diet tailored to a specific individual’s nutritional needs.</td>
<td>The authors describe the challenges presented by the COVID-19 pandemic in the care of pediatric food allergy patients. This crisis may have also impacted access to appropriate nutrition in this population.</td>
<td>D’Auria E, Anania C, Cuomo B, et al. COVID-19 and food allergy in children. [published online, 2020 May 11]. Acta Biomed. doi:10.23750/abm.v91i2.9614</td>
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<td>Obstetric, anesthesia, precautions</td>
<td>11-May-20</td>
<td>COVID-19: Obstetric anesthesia care considerations</td>
<td>Journal of Clinical Anesthesia</td>
<td>Original Article</td>
<td>The authors provide valuable information regarding obstetric anesthesia care considerations including: Pre-hospital COVID-19 screening should be implemented for all pregnant patients, limit the number of staff in a delivery room or operating room when feasible, encourage the use of video messaging with other members of the patient’s support system, and an experienced provider should perform neuraxial procedures and intubations whenever possible. The authors provide an infographic detailing various considerations for the following categories: staff and equipment, elective procedure pre-administration, labor and delivery, neuraxial, C-section, and general anesthesia precautions.</td>
<td>This article provides various important considerations when using anesthesia in obstetric patient care. It is crucial to take extra care with the obstetric population when administering anesthesia, and even more so with the COVID-19 pandemic.</td>
<td>Herman JA, Units I, Kaye AD, Urman RD, Viswanath O. COVID-19: Obstetric anesthesia care considerations. J Clin Anesth. 2020;65:109860. doi:10.1016/j.jclinane.2020.109860</td>
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<td>Pediatric, adolescents, clinical characteristics, USA</td>
<td>11-May-20</td>
<td>Clinical Characteristics and Outcomes of Hospitalized and Critically Ill Children and Adolescents with Coronavirus Disease 2019 at a Tertiary Care Medical Center in New York City</td>
<td>The Journal of Pediatrics</td>
<td>Original Article</td>
<td>The authors conducted a retrospective review of children and adolescents hospitalized in New York’s Children’s Hospital at Montefiore, USA. Between March 15 and April 13, 2020, 67 children were tested positive for COVID-19, among whom 72% (n=33) were hospitalized in the general pediatric unit (age 3.6 (range 0.1-17.2) years) and 28% (n=13) to the pediatric intensive care unit (PICU) (age 14.8 (range 11.6-15.9) years). Among PICU admissions, the majority (84.6%) was 11 years and older. Among the reported comorbidities, obesity and asthma were present in 30.4% (n=14) and 24.4% (n=11) of admitted patients but were not significantly associated with need for PICU admission (p &lt;0.99). High levels of C-reactive protein, procalcitonin, and pro-B type natriuretic peptide levels and platelet counts showed a significant association with PICU admissions. 53.8% (n=7) patients experienced sepsis in PICU, and 77% (n=10) suffered acute respiratory distress syndrome that warranted invasive mechanical ventilation for 46.2% of patients.</td>
<td>The authors describe a higher than previously recognized rate of severe disease requiring PICU admission in pediatric patients admitted to the hospital with COVID-19 that was studied. This was suggested to relate to the wider social determinants of health, especially in a dense, hospital setting.</td>
<td>Chao JY, Derespina KR, Herold BC, et al. Clinical Characteristics and Outcomes of Hospitalized and Critically Ill Children and Adolescents with Coronavirus Disease 2019 at a Tertiary Care Medical Center in New York City. J Pediatr. 2020;223:14-19.e2. doi:10.1016/j.jpeds.2020.05.006</td>
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### Key Terms

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<td>11-May-20</td>
<td>Midwifery in the Time of COVID-19</td>
<td>Journal of Midwifery &amp; Women’s Health</td>
<td>Editorial</td>
<td>The author reflects on her experience in the 1980s HIV-AIDS crisis and how midwifery care has evolved since. For this COVID-19 pandemic, midwives are also looking for ways to respond. Online midwifery forums and webinars are replete with discussions that are thinking ahead to how the emerging science around COVID-19 can be merged with midwifery care. They are communicating innovative ideas for homemade disposable equipment and redesigned guidelines for call schedules, birth centers, and water births. They also have moved to internet connections that allow for virtual visits; some midwives had already been exploring virtual support in early labor. Confront with concerns and fear, the author states that midwives will always find ways to continue to work because of their resilience and professional philosophy.</td>
<td>The author described several ways of how midwives respond to the current COVID-19 through telehealth.</td>
<td>Murphy PA. Midwifery in the Time of COVID-19. J Midwifery Womens Health. 2020;65(3):299-300. doi:10.1111/jmwh.13121</td>
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<tr>
<td>11-May-20</td>
<td>COVID-19 in Children, Pregnancy and Neonates: A Review of Epidemiologic and Clinical Features</td>
<td>The Pediatric Infectious Diseases Journal</td>
<td>Special Article</td>
<td>In 11 case series including a total of 333 infants and children, 83% of the children had a positive contact history, mostly with family members. The incubation period varied between 2 and 25 days with a mean of 7 days. The virus could be isolated from nasopharyngeal secretions for up to 22 days and from stool for more than 30 days. Co-infections were reported in up to 79% of children (mainly mycoplasma and influenza). Up to 35% of children were asymptomatic. The most common symptoms were cough (48%; range 19%–100%), fever (42%; 11%–100%) and pharyngitis (30%; 11%–100%). Laboratory test parameters were only minimally altered, and radiologic findings were unspecific. Children rarely needed admission to intensive care units (3%), and to date, only a small number of deaths have been reported in children globally. In addition, nine case series and 2 case reports described outcomes of maternal SARS-CoV-2 infection during pregnancy in 65 women and 67 neonates. Two mothers (3%) were admitted to intensive care. Fetal distress was reported in 30% of pregnancies. Thirty-seven percent of women delivered preterm. Neonatal complications included respiratory distress or pneumonia (18%), disseminated intravascular coagulation (3%), asphyxia (2%) and 2 perinatal deaths. Four neonates (3 with pneumonia) have been reported to be SARS-CoV-2 positive despite strict infection control and prevention procedures during delivery and separation of mother and neonates, meaning vertical transmission could not be excluded.</td>
<td>In this review, the epidemiologic and clinical features of children infected with SARS-CoV-2, as well as the potential outcomes of neonates born to women infected with SARS-CoV-2 in pregnancy, are summarized to date.</td>
<td>Zimmermann P, Curtis N. COVID-19 in Children, Pregnancy and Neonates: A Review of Epidemiologic and Clinical Features. Pediatr Infect Dis J. 2020;39(6):469-477. doi:10.1097/INF.0000000000002700</td>
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<td>11-May-20</td>
<td>Pediatric Life-Threatening Coronavirus Disease 2019 With Myocarditis</td>
<td>The Pediatric Infectious Diseases Journal</td>
<td>Brief Report</td>
<td>A healthy 8-year-old boy of African origin presented with a 4-day history of fever, coughing, weight loss, and severe fatigue. On physical examination, he was febrile and presented a warm, painful, swollen erythema; he was diagnosed with cellulitis, which was confirmed by echography. Within a few hours of hospitalization for IV antibiotics, he developed tachycardia and low blood pressure. Blood tests showed increased C-reactive protein, leukopenia with lymphopenia, thrombocytopenia, and myocardial necrosis as well as elevated D-dimers and IL-6. Echocardiography revealed impaired left ventricular function and trace mitral insufficiency as well as a small pericardial effusion. The patient was admitted to the ICU and received oxygen to support heart function. Follow-up blood tests showed progression</td>
<td>A pediatric case of life-threatening COVID-19 leading to myocarditis, cytokine storm, and heart failure is described.</td>
<td>Oberweis ML, Codreanu A, Boehm W, et al. Pediatric Life-Threatening Coronavirus Disease 2019 With Myocarditis [published online 2020 May 11]. Pediatr Infect Dis J. doi:10.1097/INF.000000000002744</td>
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<td>Pregnancy, obstetric anesthesia, pre-hospital screening, interim guidance</td>
<td>11-May-20</td>
<td>COVID-19: Obstetric Anesthesia Care Considerations</td>
<td>Journal of Clinical Anesthesia</td>
<td>Brief Communication</td>
<td>This article presents considerations for obstetric anesthesia care, including an infographic using several sources of information. Major suggestions include the implementation of pre-hospital COVID-19 screening for all pregnant patients; limiting the number of staff in a delivery room or operating room when feasible; encouraging the use of video messaging with other members of the patient’s support system; and performance of neuraxial procedures and intubations by an experienced provider, whenever possible.</td>
<td>Interim guidance for the obstetric anesthesia care of women with suspected or confirmed COVID-19 is provided.</td>
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<tr>
<td>Pregnancy, neuro-developmental disorders, cytokine storm, hyper-inflammation, IL-6</td>
<td>11-May-20</td>
<td>COVID-19 During Pregnancy: Potential Risk for Neurodevelopmental Disorders in Neonates?</td>
<td>European Journal of Obstetrics &amp; Gynecology and Reproductive Biology</td>
<td>Correspondence</td>
<td>There is growing evidence that prenatal infection and enhanced expression of cytokines are associated with an increased risk of autism spectrum disorder and schizophrenia in the offspring. Maternal immune activation appears to act as a “neurodevelopmental disease primer” increasing the susceptibility of individuals to the epigenetic alterations and environmental exposures that can interact in triggering disease-related symptoms later in life. IL-6 has been treated as an indicator of maternal systemic inflammation with potential to influence placental-fetal interactions and subsequently fetal brain development and increased risk of offspring psychiatric disorders. In addition, it has been found that maternal IL-6 is inversely associated with offspring cognition at 12-months age. Therefore, it is reasonable to hypothesize that the cytokine storm and hyperinflammation found in pregnant women with SARS-CoV-2 infection may increase the risk for neurodevelopmental disorders in neonates.</td>
<td>Maternal systemic inflammation and cytokines like IL-6, which play a prominent role in the cytokine storm of SARS-CoV-2 infection, have been associated with increased risk of neurodevelopmental disorders in offspring.</td>
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<td>Pregnancy, neonate, vaginal delivery, fetal monitoring, mechanical breast stimulation, Portugal</td>
<td>11-May-20</td>
<td>Vaginal Delivery in a Woman Infected With SARS-CoV-2 – The First Case Reported in Portugal</td>
<td>European Journal of Obstetrics &amp; Gynecology and Reproductive Biology</td>
<td>Correspondence</td>
<td>On March 17, 2020, a Caucasian 31-year-old woman with 38 weeks’ gestation was admitted to hospital in Porto, Portugal, complaining of mild painful uterine contractions for a few hours. Since her husband had been diagnosed with COVID-19 and hospitalized on March 12, she was treated as a suspected case upon admission. SARS-CoV-2 was detected by RT-PCR analysis on nasal and oropharyngeal swabs. Following an operative vaginal delivery, with fetal vacuum extraction, the umbilical cord was immediately clamped without neonate-maternal contact. The newborn was separated from the mother immediately after birth, and repeated newborn nasal and oropharyngeal RT-PCR tests were negative for SARS-CoV-2. Symptomatic, the mother was discharged first and began mechanical breast stimulation, in order to breastfeed soon after her COVID-19 recovery.</td>
<td>This case describes an uncomplicated vaginal delivery, with continuous electronic fetal monitoring, in a woman with COVID-19 without severe disease; the neonate tested negative for SARS-CoV-2.</td>
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<td>Late pregnancy, neonates, convalescent mothers, Italy</td>
<td>11-May-20</td>
<td>Report of a Series of Healthy Term Newborns From Convalescent Mothers With COVID-19 (only abstract available when posted on May 22, 2020)</td>
<td>Acta Biomedica</td>
<td>Correspondence/Case Reports</td>
<td>This case series reports four neonates whose mothers had recovered from COVID-19 (RT-PCR assays on nasopharyngeal swabs turned negative). All four women were diagnosed in the third trimester of pregnancy at Parma Hospital, Italy in March and April 2020. All neonates were delivered (3 vaginal delivery, 1 elective cesarean section) at term in good conditions without evidence of congenital COVID-19 infection on nasopharyngeal swabs, and all were breastfed.</td>
<td>Findings from this series indicate that adverse effects on fetuses from pregnancies complicated by COVID-19; four healthy neonates were born to mothers recovering from SARS-CoV-2 infection in the third trimester of pregnancy.</td>
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<td>Children, screening, case definition criteria, clinical presentation, Italy</td>
<td>11-May-20</td>
<td>Screening of COVID-19 in Children Admitted to the Hospital for Acute Problems: Preliminary Data</td>
<td>Acta Biomedica</td>
<td>Original Investigation</td>
<td>Of 42 children (median 6.2 years, range 1 month-17.8 years) referred for COVID-19 testing based on suspected case definition criteria, none tested positive for SARS-CoV-2 on nasopharyngeal swab RT-PCR. At first presentation, the most frequent signs and symptoms were: fever (71.4%), fatigue (35.7%) and cough (30.9%). Elevated C-reactive protein levels and chest X-ray abnormalities (bronchial wall thickening) were detected in 26.2% and 19% of patients, respectively. Almost half of patients (45.2%) required hospitalization in the Pediatric Unit and one patient in Intensive Care Unit.</td>
<td>Children of all ages are susceptible to COVID-19, although they appear to be affected less frequently than adults, as reported in this preliminary survey.</td>
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<td>Children, clinical characteristics, preliminary findings, Calabria Region, Italy</td>
<td>11-May-20</td>
<td>Preliminary Epidemiological Analysis on Children and Adolescents With Novel Coronavirus Disease (2019-nCoV) in a</td>
<td>Acta Biomedica</td>
<td>Correspondence</td>
<td>From March 1 to April 9, 2020, a total of 173 children (86 male) met the screening criteria for suspected 2019-nCoV infection, across three provinces of the Calabria Region, Italy (Catanzaro, Vibo Valentia and Crotone). All tests on nasal and pharyngeal swab specimens were performed using RT-PCR assays. Ten children (5.8%) were confirmed to have COVID-19 infection. The median age of infected children was 11.9 years (range: 2.5-17.9 years) with greater prevalence of the age group between 10-15 years (40%) in accordance with national Italian data. The most important finding from the present preliminary report is the confirmed evidence that children are susceptible to SARS-CoV-2 infection but often have mild disease.</td>
<td>Preliminary demographic and clinical data from the Calabria Region of Italy show children are susceptible to SARS-CoV-2 infection but often have mild disease.</td>
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<td>11-May-20</td>
<td>SARS-CoV-2 Infection in Children in Parma</td>
<td>Acta Biomedica</td>
<td>Correspondence</td>
<td>Symptomatic and asymptomatic children, with known contact with confirmed or suspected SARS-CoV-2 cases, were evaluated at the Barilla Children's Hospital of Parma, Italy. Of 61 children tested between February 26 and April 14, 2020, 14 (23%) were confirmed to have SARS-CoV-2 infection. The median age of infected children was 22 months. Fever was present in 100% of the children with median duration of 17 hours. Other common symptoms included cough (35%) and pharyngeal erythema (50%). None had pneumonia or needed oxygen therapy. One patient has febrile seizures. Another patient had anemia and lymphopenia.</td>
<td>Descriptive data on 14 children, with SARS-CoV-2 infection and relatively mild clinical course of disease, from Parma, Italy are described in this study.</td>
<td>Dodi I, Castellone E, Pappalardo M, et al. SARS-CoV-2 infection in children in Parma. Acta Biomed. 2020;91(2):214-215. Published 2020 May 11. doi:10.3949/ccjm.87a.ccc02 2.</td>
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<td>11-May-20</td>
<td>Coronavirus Disease 2019 (COVID-19) in Adolescents: An Update on Current Clinical and Diagnostic Characteristics</td>
<td>Acta Biomedica</td>
<td>Review</td>
<td>This paper summarizes current findings (as of April 3, 2020) from a systematic literature review on COVID-19 in adolescents (10-19 years according to the WHO definition) and reports preliminary epidemiological data from the Italian National Institute of Health. In terms of epidemiological characteristics, the reported prevalence of infection in China, Korea, USA, and Italy was equal to 1%, 4%, 1.7%, and 0.87% respectively. Compared with elderly patients, adolescent and young adults with COVID-19 have longer incubation period, shorter serial interval, higher odds of being asymptomatic, and lower mortality rate.</td>
<td>This article reviews existing literature on COVID-19 in adolescents, who are more likely to be asymptomatic and have lower mortality rates compared to elderly patients.</td>
<td>De Sanctis V, Ruggiero L, Soliman AT, et al. Coronavirus Disease 2019 (COVID-19) in adolescents: An update on current clinical and diagnostic characteristics. Acta Biomed. 2020;91(2):184-194. doi:10.23750/abm.v91i2.95 63.</td>
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<td>11-May-20</td>
<td>Managing COVID-19 Infection in Pediatric Patients</td>
<td>Cleveland Clinic Journal of Medicine</td>
<td>COVID-19 Curbside Consults</td>
<td>Children are less likely to be infected with SARS-CoV-2 than adults and often have a milder course of illness and a lower case fatality rate. Children account for an estimated 1% to 5% of those diagnosed with COVID-19. Even so, pre-school-aged children, infants, and children with underlying health conditions may still be at risk for severe disease and complications. Unique aspects of COVID-19 presentation and course in children and possible vertical transmission to newborns from COVID-19 positive mothers are discussed in this report.</td>
<td>This report summarizes unique aspects of COVID-19 in children and evidence around risk of vertical transmission.</td>
<td>Mon EY, Mandella Y. Managing COVID-19 infection in pediatric patients [published online 2020 May 11]. Cleve Clin J Med. doi:10.3949/ccjm.87a.ccc02 2.</td>
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<td>11-May-20</td>
<td>Universal SARS-CoV-2 Testing of Pregnant Women Admitted for Delivery in Two Italian Regions</td>
<td>American Journal of Obstetrics and Gynecology</td>
<td>Research Letter</td>
<td>Between March 26 and April 1, 2020, hospitals in 2 neighboring Italian regions, Tuscany and Liguria, implemented universal SARS-CoV-2 screening by nasopharyngeal swab for all women admitted for delivery. Up to April 19, 533 women were admitted for delivery across all hospitals. Of these, 3 women from Tuscany tested positive (2 asymptomatic, 1 had anosmia only). All gave birth without maternal or neonatal complications. The estimated prevalence in this sample was 3/533 = 0.56% (95% CI: 0.19-1.64). During the studied period, the overall prevalence of positive cases reported by the Italian COVID-19 Surveillance System in women of 20 to 39 years of age in Tuscany was 0.094%. From these data, the authors estimate that 83% (95% CI: 51-94%) of infections were unreported i.e. the real prevalence risk of the general population of women of this age is 6 (95% CI: 2-11) times the rate found in women tested for clinical reasons.</td>
<td>Universal SARS-CoV-2 screening of pregnant women in two regions of Italy was an effective strategy to detect infections.</td>
<td>Gagliardi L, Danieli R, Suriano G, et al. Universal SARS-CoV-2 testing of pregnant women admitted for delivery in two Italian regions [published online 2020 May 11]. Am J Obstet Gynecol. doi:10.1016/j.ajog.2020.05. 017.</td>
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<td>11-May-20</td>
<td>Managing COVID-19 Infection in Pediatric Patients</td>
<td>Cleveland Clinic Journal of Medicine</td>
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<td>Children are less likely to be infected with SARS-CoV-2 than adults and often have a milder course of illness and a lower case fatality rate. Children account for an estimated 1% to 5% of those diagnosed with COVID-19. Even so, pre-school-aged children, infants, and children with underlying health conditions may still be at risk for severe disease and complications. Unique aspects of COVID-19 presentation and course in children and possible vertical transmission to newborns from COVID-19-positive mothers are discussed in this report. To date, there is no clear evidence of intrauterine transmission, but there is a plausible risk of infection during and after delivery. The US Centers for Disease Control and Prevention and American Academy of Pediatrics recommend that newborns born to COVID-19 positive mothers should be considered persons under investigation and tested using nasal and throat swabs by molecular assays at 24 hours and 48 hours of age.</td>
<td>This report summarizes unique aspects of COVID-19 presentation and course in children as well as current evidence on vertical transmission to newborns.</td>
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<td>Pregnancy, maternal outcomes, non-pregnant women, preterm delivery</td>
<td>11-May-20</td>
<td>The Effects of Pregnancy on Women With COVID-19: Maternal and Infant Outcomes</td>
<td>Clinical Infectious Diseases</td>
<td>Editorial Commentary</td>
<td>There have been numerous publications addressing the adverse effects of COVID-19 on pregnant women, as well as their newborn infants. However, limited data are available to determine whether pregnancy itself has any consequences on the health of reproductive aged women with COVID-19. Using a case-control experimental design at a hospital in Hubei province, China, Li et al. found that pregnant women with COVID-19 generally had milder respiratory symptoms, compared to non-pregnant women with COVID-19. A higher incidence of premature delivery in pregnant women with COVID-19 was also reported but was not the result of severe maternal respiratory disease. Despite these favorable clinical outcomes, there are increasing reports of poor clinical outcomes arising from COVID-19 among pregnant women outside of China.</td>
<td>This review summarizes the results of a case-control study in China that found milder respiratory symptoms in pregnant vs. non-pregnant women with COVID-19. The authors also review recent reports on severe COVID-19 disease in pregnant women.</td>
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<td>Child, cystic fibrosis, hemoptysis, poor nutritional status, antimicrobial therapy, Switzerland</td>
<td>11-May-20</td>
<td>COVID-19: A Message of Hope From a Young Girl With Severe Cystic Fibrosis</td>
<td>Pediatric Pulmonology</td>
<td>Letter to the Editor</td>
<td>This case report describes a 9-year-old girl with severe complicated cystic fibrosis (CF) lung disease, characterized by a need for nighttime ventilatory support, regular intravenous antibiotics, and gastrostomy feeds due to poor nutritional status. She was admitted for new onset of mild hemoptysis after 2 weeks of elective intravenous antimicrobial therapy. Concomitantly, the patient’s father was hospitalized for confirmed SARS-CoV-2 pneumonia. Initially the RT-PCR performed on the patient’s nasopharyngeal secretions was negative, but a repeated RT-PCR on a sputum sample was positive 4 days later. Clinically she remained stable without any new symptoms suggestive of COVID-19 or exacerbation of her chronic mild inflammatory syndrome. In this case, a 9-year-old girl with severe cystic fibrosis lung disease had an uneventful clinical course of COVID-19.</td>
<td>In this case, a 9-year-old girl with severe cystic fibrosis lung disease had an uneventful clinical course of COVID-19.</td>
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<td>North America child deaths, review systematic susceptibility, rate, observed case epidemiology, clinical Children</td>
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<td>chest X-ray did not worsen from baseline. Her hemoptyisis resolved after suspending nebulized antibiotics and mucolytic agents. The unexpected uneventful clinical course in this report is encouraging for other CF patients.</td>
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<td>Infant, co-infection, RSV, Germany</td>
<td>11-May-20</td>
<td>Co-infection of SARS CoV-2 and Influenza A in a Pediatric Patient in Germany</td>
<td>Klinische Pädiatrie</td>
<td>Short Communication</td>
<td>A 4-month-old infant presented to the outpatient department with 1-day history of fever and cough. The infant’s grandmother had tested positive for SARS-CoV-2 the previous day and had last contacted the infant 8 days prior to the described presentation. On examination, the infant showed no clinical signs of pneumonia. A nasopharyngeal swab for RSV and influenza rapid immunochromatographic assay testing was obtained, turning positive for influenza A and negative for RSV. Due to the similar significant history for COVID-19, a pharyngeal swab for SARS-CoV-2 RT-PCR testing was also performed and showed a positive result some days later. The patient was sent home, instructed to take Osemlamivir for 5 days, and advised to present to the hospital in case of decreasing fluid intake or continuing fever.</td>
<td>In this case, a 4-month-old infant with co-infection of SARS CoV-2 and influenza A virus developed a mild course of disease.</td>
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<tr>
<td>Children, routine vaccinations, MMR, England</td>
<td>11-May-20</td>
<td>Early impact of the COVID-19 pandemic and social distancing measures on routine childhood vaccinations in England, January to April 2020</td>
<td>medRxiv</td>
<td>Preprint (not peer reviewed)</td>
<td>Electronic health records were used to assess the early impact of COVID-19 on routine childhood vaccination in England, through April 26, 2020. Measles, mumps, and rubella (MMR) vaccination counts fell in February 2020 and, in the three weeks after the introduction of social distancing measures, were 19.8% lower (95% CI -20.7% to -18.9%) than the same period in 2019, before improving in mid-April. A gradual decline in hexavalent (protecting against six diseases: diphtheria, tetanus, pertussis [DTP], poliovirus, hepatitis B virus, and Haemophilus influenzae type b) vaccination counts throughout 2020 was not accentuated upon introduction of social distancing measures.</td>
<td>After the introduction of social distancing measures in England, MMR vaccination counts were 19.8% lower than the same period in 2019.</td>
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<td>Children, clinical characteristics, epidemiology, observed case rate, susceptibility, systematic review</td>
<td>11-May-20</td>
<td>SARS-CoV-2 (COVID-19): What Do We Know About Children? A Systematic Review</td>
<td>Clinical Infectious Diseases</td>
<td>Major Article</td>
<td>This rapid systematic review and narrative synthesis of all literature relating to SARS-CoV-2 in pediatric populations identified 24 related studies. English abstracts of Chinese articles were included. Children appear to be less affected by COVID-19 than adults by observed rate of cases in large epidemiological studies, but limited data on attack rate indicate that children are just as susceptible to infection. This discrepancy may be because children are asymptomatic or too mildly infected to draw medical attention, be tested and counted in observed cases of COVID-19. Data on clinical outcomes are scarce but include several reports of asymptomatic infection and a milder course of disease in young children. Severe cases are not reported in detail and there are little data relating to transmission.</td>
<td>In this systematic review of literature on COVID-19 in pediatric populations, children appear to have a low observed case rate of COVID-19 but similar susceptibility to infection as adults.</td>
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<tr>
<td>Children, PICU, child deaths, comorbidities, North America</td>
<td>11-May-20</td>
<td>Characteristics and Outcomes of Children With Coronavirus Disease 2019 (COVID-19) Infection Admitted to US and Canadian Pediatric</td>
<td>JAMA Pediatrics</td>
<td>Original Investigation</td>
<td>In this cross-sectional study of 46 North American pediatric intensive care units (PICUs), between March 14 and April 3, 2020, 48 children (median: 13 years, range: 4.2–16.6 years) with COVID-19 were admitted. 40 children (83%) had preexisting underlying medical conditions. Of 48 total children, 35 (73%) presented with respiratory symptoms, and 18 (38%) required invasive ventilation. Eleven patients (23%) had failure of 2 or more organ systems. Extracorporeal membrane oxygenation (ECMO) was required for 1 patient (2%). Targeted therapiest were used in 28 patients (61%), with hydroxychloroquine being the most commonly used agent either alone (11 patients) or in combination (10 patients). At the completion of the follow-up this early study, from North American PICUs, shows that COVID-19 can result in significant disease burden in children but confirms that severe illness is less frequent than in adults. Prehospital comorbidities appear to</td>
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<tr>
<td>10-May-20</td>
<td>Infant, Kawasaki Disease, CRP, IVIG, India</td>
<td>Indian Pediatrics</td>
<td>Clinical Case Letter</td>
<td>A 4-month-old infant presented with a 4-day history of high-grade fever and developed an erythematous macular rash over the trunk, palm and sole on the second day. On admission, the child was hemodynamically stable and breastfeeding normally but had red lips, congested throat, and small cervical lymphadenopathy. Antibiotic therapy was initiated, but fever continued until the third day when he developed non-purulent conjunctivitis with left subconjunctival hemorrhage. Fever subsided 24 hours after IV immunoglobulin therapy was started, following when his SARS-CoV-2 RT-PCR test revealed a positive result. Over the course of hospitalization, a rise of C-reactive protein was observed without any neutrophilia, lymphopenia, or organ dysfunction.</td>
<td>This case of Kawasaki-like disease is a novel presentation among young children in India, still in the early stage of the pandemic.</td>
<td>Acharya BC, Acharyya S, Das D. Novel Coronavirus Mimicking Kawasaki Disease in an Infant [published online 2020 May 22]. Indian Pediatr. 2020.1948</td>
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<td>10-May-20</td>
<td>COVID-19 and Pregnancy - Where Are We Now? A Review</td>
<td>Journal of Perinatal Medicine</td>
<td>Review</td>
<td>Currently, there is no evidence that pregnant women are more susceptible to SARS-CoV-2 infection than the general population. Premature rupture of membranes, premature labor and fetal distress have been observed in women with COVID-19 in their third trimester. There are no data on complications of SARS-CoV-2 infection before the third trimester. COVID-19 infection should not be the only indication for delivery but can indicate surgical delivery if necessary to improve maternal oxygenation; decision on delivery mode should be individualized. Vertical transmission of SARS-CoV-2 from the pregnant woman to the fetus has not been proven. As the virus is absent in breast milk, the experts encourage breastfeeding for neonatal acquisition of protective antibodies.</td>
<td>Current evidence on COVID-19 in pregnancy, neonatal outcomes, and breastfeeding are reviewed.</td>
<td>Rajewska A, Mikofajek-Bedner W, Lebedowicz-Knul J, Sokolowska M, Kwiatkowsk S, Torbé A. COVID-19 and pregnancy - where are we now? A review [published online 2020 May 10]. J Perinat Med. doi:10.1515/jpm-2020-0132</td>
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<td>10-May-20</td>
<td>Perinatal depressive and anxiety symptoms of pregnant women along with COVID-19 outbreak in China</td>
<td>American Journal of Obstetrics &amp; Gynecology</td>
<td>Original Research</td>
<td>A multi-center cross-sectional study was initiated in early December 2019 to identify mental health concerns in pregnancy using the Edinburgh Postnatal Depression Scale (EPDS). This study provided a unique opportunity to compare the mental status of pregnant women before and after the announcement of the COVID-19 epidemic. A total of 4124 pregnant women during their third trimester from 25 hospitals in 10 provinces across China were evaluated. Of these, 1285 pregnant women, who were assessed after the public declaration of the COVID-19 epidemic, had significantly higher rates of depressive symptoms (26.0% vs 29.6%, P=0.02) than 2839 women assessed pre-epidemic announcement. These women were also more likely to endorse thoughts of self-harm (P=0.005). The depressive rates were positively associated with the number of newly confirmed COVID-19 cases (P=0.003), suspected infections (P=0.004), and death cases per day (P=0.001). Pregnant women who were underweight pre-pregnancy, primiparous, &lt;35 years old, employed full-time, middle income, and had appropriate living space were at increased risk of developing depressive and anxiety symptoms during the outbreak.</td>
<td>This study found higher rates of depressive symptoms and thoughts of self-harm among pregnant women after the announcement of the COVID-19 pandemic, compared to pregnant women evaluated pre-announcement in China.</td>
<td>Wu Y, Zhang C, Liu H, et al. Perinatal depressive and anxiety symptoms of pregnant women along with COVID-19 outbreak in China [published online 2020 May 10]. Am J Obstet Gynecol. doi:10.1016/j.ajog.2020.05.009</td>
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<tr>
<td>regional anesthesia, France</td>
<td>pregnant patients</td>
<td>The Importance of Continuing Breastfeeding During COVID-19: In Support to the WHO Statement on Breastfeeding During the Pandemic</td>
<td>The Journal of Pediatrics</td>
<td>Editorial</td>
<td>This commentary draws upon a statement and recommendations recently issued by the Regional Office for Europe of the WHO with the contribution of main European pediatric organizations. According to the WHO, mothers with suspected or confirmed COVID-19 can breastfeed their newborns as long as they take appropriate precautions. Breast milk encloses various antimicrobial substances, anti-inflammatory components and factors that promote the development of the immune system and reduce the occurrence of respiratory tract infections. There is no evidence to date to suggest the novel coronavirus can pass to infants through breast milk, although the possibility cannot be ruled out.</td>
<td>This editorial draws upon WHO recommendations to provide guidance in support of breastfeeding and related safety measures during the COVID-19 pandemic</td>
<td>Williams J, Namazova-Baranova L, Weber M, et al. The importance of continuing breastfeeding during COVID-19: in support to the WHO statement on breastfeeding during the pandemic [published online 2020 May 20]. J Pediatr. doi:10.1016/j.jpeds.2020.05.009</td>
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<td>Breastfeeding, breast milk, immune system development, WHO</td>
<td>10-May-20</td>
<td>The Immunologic Status of Newborns Born to SARS-CoV2-infected Mothers in Wuhan, China</td>
<td>Journal of Allergy and Clinical Immunology</td>
<td>Original Article</td>
<td>Immunologic dysfunction due to COVID-19 is closely related to clinical diagnosis, and the immunologic response of pregnant women may affect the directional differentiation and function of fetal immune cells. Of 51 newborns from mothers with COVID-19 in the third trimester, none showed fever or respiratory distress during hospitalization. Detection of SARS-CoV-2 nucleic acid in pharyngeal swabs was negative. Except for the low level of CD16-CD56 cells, the count and proportion of lymphocytes, CD3, CD4, CD8, and CD19 were all in the normal range. Moreover, the serum IgG and IgM levels were within the normal range, while IL-6 showed increased levels. There was no correlation between maternal COVID-19 duration and the lymphocyte subsets or cytokine levels (IFN-γ, IL-2, IL-4, IL-6, IL-10 and TNF-α) in newborns. There was a positive correlation between IL-6 and IL-10 levels and CD16-CD56 cells. One (1.96%) infant with an extremely elevated IL-6 concentration developed necrotizing enterocolitis in the third week after birth, and the remaining 50 infants did not show abnormal symptoms through the end of the follow-up period.</td>
<td>In this study, COVID-19 in the third trimester did not significantly affect the cellular and humoral immunity of the fetus, and there was no evidence that the differentiation of lymphocyte subsets was seriously unbalanced.</td>
<td>Liu P, Zheng J, Yang P, et al. The immunologic status of newborns born to SARS-CoV2-infected mothers in Wuhan, China [published online 2020 May 20]. J Allergy Clin Immunol. doi:10.1016/j.jaci.2020.04.038</td>
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<tr>
<td>Neonates, third trimester pregnancy, lymphocyte subsets, cytokotics, immunologic status, China</td>
<td>10-May-20</td>
<td>Hyper-inflammatory Syndrome in a Child With COVID-19 Treated Successfully With Intravenous Immunoglobulin and Tocilizumab</td>
<td>Indian Pediatrics</td>
<td>Clinical Case Letter</td>
<td>In this case report, an 8-year-old boy was admitted to a local hospital with a 4-day history of fever, cough, and throat pain. On admission, RT-PCR for SARS-CoV-2 was negative. The patient's fever and respiratory symptoms worsened, despite empirical antibiotic therapy, so he was admitted to a referral hospital. Examination showed fever, hypotension, generalized skin rash, bulbar conjunctivitis, cracked lips, strawberry tongue, edema of limbs, tender hepatomegaly and abdominal distention. Investigations showed low hemoglobin, neutrophil predominant leukocytosis, elevated platelet count and erythrocyte sedimentation rates, hyper-ferritinemia, hyperalbuminemia, hypernatrexia, and 2+ proteinuria. Repeat nasopharyngeal RT-PCR was positive, and multiplex PCR of nasopharyngeal aspirate detected Coronavirus.</td>
<td>This case report adds to growing recognition of a small number of children presenting with a multisystem inflammatory syndrome, sharing features with Kawasaki Disease, that may be associated with COVID-19. Tocilizumab may be</td>
<td>Balasubramanian S, Nagendran TM, Ramachandran B, Ramanan AV. Hyper-inflammatory Syndrome in a Child With COVID-19 Treated Successfully With Intravenous Immunoglobulin and Tocilizumab [published online 2020 May 20]. Indian Pediatrics. doi:10.1177/2333794620926089</td>
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**COVID-19, Maternal and Child Health, Nutrition – Literature Repository**

**May 2020**

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<td>Nutritional status, food insecurity, routine nutrition services, micronutrient supplementation, vulnerable populations</td>
<td>10-May-20</td>
<td>COVID-19 Pandemic - Are We Heading From Health Crisis Towards An Unprecedented Nutrition Crisis?</td>
<td>Current Topics in Medicinal Chemistry</td>
<td>Editorial</td>
<td>The persisting COVID-19 pandemic will have long-lasting effects on the masses i.e. on nutritional status, health, economies and the global food chain. Necessary steps to maintain and promote healthy nutritional status include effective integration of nutrition-supportive measures into COVID-19 action plans, while safeguarding prevailing nutrition programs, particularly for vulnerable populations (children, pregnant women, and the elderly). In addition, awareness must be generated through mobile phone surveys and nutrition counselling through media, regarding the importance of high-quality diets, appropriate infant and young child feeding practices, optimal breastfeeding techniques, and dietary diversity. Keeping in mind the predictable upsurge in malnutrition, due to food insecurity and diversion of healthcare resources away from nutrition programs and towards COVID-19, it is important to provide timely screening, referral services, and micronutrient supplements to vulnerable populations.</td>
<td>This editorial highlights concerns related to and potential strategies to mitigate the growing nutritional crisis due to the food insecurity and disruptions in routine service delivery caused by the COVID-19 pandemic, particularly for vulnerable populations.</td>
<td>Kumar Y, Jain A. COVID-19 Pandemic - Are We Heading From Health Crisis Towards An Unprecedented Nutrition Crisis? [published online 2020 May 10]. Curr Top Med Chem. doi:10.2174/156802662099200511092629</td>
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<tr>
<td>Children, emergency department, respiratory infection clinic, asthma, Melbourne, Australia</td>
<td>10-May-20</td>
<td>SARS-CoV-2 Testing and Outcomes in the First 30 Days After the First Case of COVID-19 at an Australian Children’s Hospital</td>
<td>Emergency Medicine Australia</td>
<td>Original Research</td>
<td>In this retrospective cohort study at a tertiary children’s hospital in Melbourne, Australia, early data were collected on 433 pediatric patients (0-18 years) who presented to the Emergency Department (331, 65%) or Respiratory Infection Clinic (102, 24%) and were tested for SARS-CoV-2, between March 21 and April 19, 2020. SARS-CoV-2 was detected in 4 (0.9%) patients, none of whom were admitted to the hospital or developed severe disease. Of these SARS-CoV-2 positive patients, 1/4 (25%) had a comorbidity, which was asthma. Of the SARS-CoV-2 negative patients, 196/429 (46%) had comorbidities. Risk factors (e.g. contact history with confirmed cases or overseas travel) for COVID-19 were identified in 4/4 SARS-CoV-2 positive patients and 47/429 (11%) SARS-CoV-2 negative patients.</td>
<td>At a tertiary children’s hospital in Australia, early data show very low rates of SARS-CoV-2 positive cases in children, none of whom developed severe disease.</td>
<td>Ibrahim LF, Tosif S, McNab S, et al. SARS-CoV-2 Testing and Outcomes in the First 30 Days after the First Case of COVID-19 at an Australian Children’s Hospital [published online 2020 May 10]. Emerg Med Australas. doi:10.1111/1742-6723.13550</td>
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<td>Child, Kawasaki disease shock syndrome, hypotension, inflammatory markers, USA</td>
<td>9-May-20</td>
<td>Incomplete Kawasaki Disease in a Child With Covid-19</td>
<td>Indian Pediatrics</td>
<td>Clinical Case Letter</td>
<td>This case report describes a 5-year-old previously healthy African American male admitted to the pediatric inpatient floor with daily fever for 8 days. He had a history of rash, swelling, conjunctivitis, decreased appetite, diarrhea, dysuria, and abdominal pain. He had been treated with cefdinir for positive rapid streptococcal antigen test 4 days prior, without clinical improvement. Physical examination showed dry, cracked, erythematous lips, non-exudative conjunctivitis, and bilateral cervical lymphadenopathy but no rash. Clinically, he met criteria for incomplete Kawasaki disease (KD). Initial laboratory workup was significant for leukocytosis, thrombocytopenia, elevated inflammatory markers, hyponatremia, pyuria, hypoalbuminemia, elevated liver enzymes, elevated troponins, and negative rapid influenza A/B antigens. SARS-CoV-2 RNA was detected on RT-PCR from his nasopharyngeal swab. Echocardiogram showed a small global pericardial effusion. He was transferred to the PICU due to hypotension and received fluid boluses and IV.</td>
<td>In this case report, a 5-year-old child with SARS-CoV-2 infection developed hypotension with elevated inflammatory markers, indicating Kawasaki Disease shock syndrome (KDSS). The association between COVID-19 and KDSS warrants further investigation.</td>
<td>Rivera-Figueroa EI, Santos R, Simpson S, Garg P. Incomplete Kawasaki Disease in a Child with Covid-19 [published online 2020 May 9]. Indian Pediatr. 2020;57(9):591-596.</td>
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<td>Pregnancy, early postpartum, intensive care, mechanical ventilation, maternal morbidity, non-pregnant women, Sweden</td>
<td>9-May-20</td>
<td>Severe Maternal Morbidity and Mortality Associated With COVID-19: The Risk Should Not Be Down-Played</td>
<td>Acta Obstetrica et Gynecologica Scandinavica</td>
<td>Special Editorial</td>
<td>In a recent report released by the Public Health Agency of Sweden, between Match 19 and April 10, 2020, a total of 53 women with COVID-19 (range: 20-45 years) received intensive care; of these, 13 were or had recently been pregnant. 6/13 pregnant and early postpartum women required invasive mechanical ventilation. An analysis based on an estimate of the total number of pregnant and non-pregnant women in the population of Sweden revealed that the relative risk (RR) for pregnant and early postpartum women (&lt;1 week) with COVID-19 to receive intensive care was 5.4 (95% CI 2.89-10.08) and to require invasive mechanical ventilation was 4.0 (95% CI 1.75-9.14), compared to non-pregnant women of similar age. This risk remained higher (RR 3.5; 95% CI 1.86-6.52) even after accounting for 50% more pregnancies in the denominator to include possible miscarriages and intrauterine deaths. Although the results are based on a relatively small number of cases, the potential elevated risk of maternal morbidity and mortality is significant and should not be ignored.</td>
<td>The authors estimate relative risks of pregnant and early postpartum women with COVID-19 to require intensive care and mechanical ventilation, compared to their non-pregnant counterparts in Sweden.</td>
<td>Westgren M, Pettersson K, Hagberg H, Acharya G. Severe maternal morbidity and mortality associated with COVID-19: The risk should not be down-played [published online, 2020 May 9]. Acta Obstet Gynecol Scand. 2020. doi:10.1111/aogs.13900</td>
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<td>Children, hygiene, asymptomatic transmission, face masks</td>
<td>9-May-20</td>
<td>To mask or not to mask children to overcome COVID-19.</td>
<td>European Journal of Pediatrics</td>
<td>Original Article</td>
<td>To reduce the role of asymptomatic or poorly symptomatic people in COVID-19 transmission, universal use of face masks in addition to hand hygiene and safety distance seems extremely useful. Consequently, preparing the healthy child to use face masks is strongly needed. In addition to the need for masks available in different sizes, the use of masks in children must be preceded by parental and school-based guidance on issues of hygiene, with the aim of ensuring cooperation of children.</td>
<td>Children must be appropriately guided to learn how to use face masks, in order to help reduce asymptomatic COVID-19 transmission.</td>
<td>Esposito S, Principi N. To mask or not to mask children to overcome COVID-19 [published online 2020 May 9]. Eur J Pediatr. doi:10.1007/s00431-020-0367-9</td>
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<td>Children, chilblain-like lesions, peak incidence, Spain</td>
<td>9-May-20</td>
<td>Chilblains in Children in the Setting of COVID-19 Pandemic</td>
<td>Pediatric Dermatology</td>
<td>Original Article</td>
<td>Acral lesions on the hands and feet, closely resembling chilblains, have been observed during the peak incidence of the COVID-19 pandemic. In this retrospective review of 22 children and adolescents with chilblain-like lesions in Madrid, Spain, all had lesions of the toes or feet, with 3 also having lesions of the fingers. Pruritus and mild pain were the only skin symptoms elicited, and only 10 had mild respiratory and/or GI symptoms. None had fever. Coagulation tests, hemogram, serum chemistry and lupus anticoagulant were normal in all patients tested. One out of 16 tested cases had elevated D-dimer results, but without systemic symptoms or other lab anomalies. SARS-CoV-2 detection by PCR was positive in 1 out of 19 cases tested. Skin biopsies obtained in 6 patients were consistent with chilblains. On follow-up, all cases showed spontaneous marked improvement or complete healing.</td>
<td>Acute chilblain-like lesions in children and adolescents are reported during a period of peak COVID-19 incidence in Madrid, Spain. These lesions are mildly symptomatic, often requiring no therapy.</td>
<td>Andina D, Nogueira-Morel L, Bascuas-Arribas M, et al. Chilblains in children in the setting of COVID-19 pandemic [published online, 2020 May 9]. Pediatr Dermatol. 2020. doi:10.1111/pde.14215</td>
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<td>COVID-19, family planning, contraception, sexual reproductive health</td>
<td>8-May-20</td>
<td>Family planning: an essential health activity in the pandemic of SARS-CoV-2</td>
<td>The European Journal of Contraception &amp; Reproductive Healthcare</td>
<td>Brief Report</td>
<td>The authors discuss the impact of COVID-19 on sexual reproductive health (SRH) worldwide and stress the importance of ensuring that women and men maintain access to contraceptive services during the pandemic. Contraceptive provision is considered by many policy makers and directors of medical institutions as a non-essential activity and as such, many contraceptive provision and abortion services have closed to reduce risk of contamination both to health providers and patients. Authors suggest creative ways to offer services that do not require personal contacts, Many contraceptive provision and abortion services are considered &quot;non-essential&quot; and have closed during the COVID-19 pandemic. Authors stress the need for consistent guidance</td>
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<td>Luís Bahamondes &amp; Maria Y. Makuch (2020) Family planning: an essential health activity in the pandemic of SARS-CoV-2, The European Journal of Contraception &amp; Reproductive Health</td>
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<td>COVID-19, clinical embryology, fertility</td>
<td>8-May-20</td>
<td>COVID-19 and fertility: a virtual reality</td>
<td>Reproductive Biomedicine Online</td>
<td>Original Article</td>
<td>Although there is no evidence yet that the virus causing COVID-19 might have negative effects on IVF outcomes, fertility treatments have been postponed helping diminish and eliminate the spread of the virus. The authors aim to provide information about possible effects of the virus on gametes and embryos and the normal functioning of the embryology laboratory. Considering previous data, the authors suggest that SARS-CoV-2, through an activation of pathogenic pathways, may increase sperm DNA fragmentation, and may affect oocyte performance through mechanisms that increase oxidative stress. In addition, SARS-CoV-2 may have a direct effect on spermatozoa or follicles/oocytes due to the ACE2 receptor and its role in development and reproduction. With known scientific knowledge and understanding of SARS-CoV-2, the authors make note of a number of changes needed to resume embryology laboratory functioning. The authors conclude that the SARS-CoV-2 pandemic has brought challenges to the global reproductive community, with possible detrimental consequences for couples seeking infertility treatment.</td>
<td>The authors provide a number of different possible effects of SARS-CoV-2 on gametes and embryos, despite there being no clear evidence yet that the virus has negative effects on IVF outcomes, and note the changes needed to continue normal function of the embryology laboratory.</td>
<td>Anifandis G, Messini CI, Daponte A, Messinis IE. COVID-19 and fertility: a virtual reality. Reprod Biomed Online. 2020;41(2):157-159. doi:10.1016/j.rbmo.2020.05.001</td>
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<tr>
<td>Trained immunity, immunity, BCG vaccination</td>
<td>8-May-20</td>
<td>Could BCG Vaccination Induce Protective Trained Immunity for SARS-CoV-2?</td>
<td>Frontiers in Immunology</td>
<td>Perspective Article</td>
<td>This article analyzed the number of positive cases and deaths in different countries and correlated them with the inclusion of Bacillus Calmette-Guérin (BCG) vaccination at birth in their national vaccination programs. Results indicated that those countries where BCG vaccination is given at birth have shown a lower contagion rate and fewer COVID-19-related deaths, suggesting that this vaccine may induce trained immunity that could confer some protection for SARS-CoV-2. The data suggest that the BCG vaccination prevents not only SARS-CoV-2 infection but also reduces the probability of developing a severe case of the disease, improving survival rates. Since BCG is a specific vaccine against M. tuberculosis infection and it has been shown to induce the development of trained immunity, these data suggest a crucial role for this vaccine in the development of unsppecific memory against respiratory viruses, like SARS-CoV-2.</td>
<td>BCG revaccination could be considered for its broad availability and low cost as a good strategy for the activation of trained immunity in the case of COVID-19.</td>
<td>Covián C, Retamal-Díaz A, Bueno SM, Kalergis AM. Could BCG Vaccination Induce Protective Trained Immunity for SARS-CoV-2?. Front Immunol. 2020;11:970. doi:10.3389/fimmu.2020.00970</td>
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<td>Pregnancy, breastfeeding, breast milk samples, viral</td>
<td>8-May-20</td>
<td>Can SARS-CoV-2-infected women breastfeed after viral clearance?</td>
<td>Journal of Zhejiang University-SCIENCE B</td>
<td>Correspondence</td>
<td>It is unclear whether breastfeeding transmits SARS-CoV-2 virus from previously infected and recovered mothers to their newborns. This report presents the clinical course of a pregnant woman (35 weeks and 2 days of gestation at admission) with COVID-19 and viral RNA measurements in the patient’s breastmilk samples at different time points after delivery. At repeated RT-PCR analyses of breast milk samples in a postpartum mother with COVID-19 were</td>
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<td>Lang GJ, Zhao H. Can SARS-CoV-2-infected women breastfeed after viral clearance?. J Zhejiang Univ Sci. 2020;21(4):99-102. doi:10.1631/jzus.B2000068</td>
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<td>clearance, China</td>
<td>8-May-20</td>
<td>Characterisation of COVID-19 Pandemic in Paediatric Age Group: A Systematic Review and Meta-Analysis</td>
<td>Journal of Clinical Virology</td>
<td>Review Article</td>
<td>This systematic review and meta-analysis analyze articles on pediatric cases of COVID-19, published up to April 2, 2020 in PubMed and Google Scholar. Of 251 children (median age: 6.5 years, range: 0-12 years) reported in 11 studies, the most frequently reported symptoms were cough (49%, 95% CI: 42 - 55%) and fever (47%, 95% CI: 41 - 53%). Lymphopenia and elevated Procalcitonin levels were recorded in 17 cases (21%, 95% CI: 12 - 30%) and 22 cases (28%, 95% CI: 18 - 37%) respectively. The case fatality rate was 0%. In addition, from 6 studies reviewed to determine vertical transmission risk, 4/58 neonates (6.8%) born to COVID-19 confirmed mothers tested positive on various samples for the disease. The affected neonates were all males and delivered by cesarean section. One neonate, who tested negative for SARS-CoV-2, died from multiorgan failure and disseminated intravascular coagulation. All samples of breast milk, amniotic fluid, cord blood, placenta, and vaginal swab in this review tested negative for SARS-CoV-2.</td>
<td>consistently negative, contributing to growing evidence that SARS-CoV-2 is not transmitted through breast milk.</td>
<td>Sci B. 2020;21(5):405-407. doi:10.1631/jzus.B2000095</td>
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<tr>
<td>Children, neonatal infection, clinical characteristics, vertical transmission, systematic review</td>
<td>8-May-20</td>
<td>Should Infants Be Separated from Mothers with COVID-19? First, Do No Harm</td>
<td>Breastfeeding Medicine</td>
<td>President's Corner</td>
<td>The World Health Organization (WHO) recommends that infants and mothers with suspected or confirmed COVID-19 “should be enabled to remain together and practice skin-to-skin contact...” Breastfeeding is strongly recommended. In contrast, the U.S. Centers for Disease Control and Prevention (CDC) advises that facilities “consider temporarily separating the mother from her infant” until the mother is no longer considered contagious. During separation, women may express breast milk to be fed to the newborn by a healthy caregiver. This article considers the following risks of temporary separation. 1) Separation may not prevent infection. 2) Interruption of skin-to-skin care disrupts newborn physiology. 3) Separation stresses mothers. 4) Separation interferes with provision of maternal milk to the infant, disrupting immune protection. 5) Disruptions in breastfeeding increase the risk of infant hospitalization for pneumonia. 6) Separate isolation doubles the burden on the health system.</td>
<td>This article presents potential risks of temporary separation of infants and mothers with COVID-19, as advised by the U.S. CDC.</td>
<td>Stuebe A. Should Infants Be Separated from Mothers with COVID-19? First, Do No Harm. Breastfeed Med. 2020;15(5):351-352. doi:10.1089/bfm.2020.2915.3.ams</td>
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<td>Pregnancy, neonates, temporary separation, skin-to-skin contact, breastfeeding</td>
<td>8-May-20</td>
<td>Vitamin C for the treatment of COVID-19: A living systematic review</td>
<td>medRxiv</td>
<td>Preprint (not peer reviewed)</td>
<td>This living systematic review aims to provide a timely, rigorous and continuously updated summary of the evidence available on the role of vitamin C in the treatment of patients with COVID-19. Results will be pooled using meta-analysis and the GRADE system will be applied to assess the certainty of evidence for each outcome. A living, web-based version of this review will be openly available during the COVID-19 pandemic and changed whenever there are substantial updates.</td>
<td>The authors introduce a living, web-based systematic review that will provide updated summaries of available evidence on the use of vitamin C in treating COVID-19.</td>
<td>Baladia E, Pizarro AB, Rada G. Vitamin C for the treatment of COVID-19: A living systematic review [published online 2020 May 8]. medRxiv. doi:10.1101/2020.04.28.2003360</td>
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<td>Children, pediatric morbidity and mortality, ICU admission</td>
<td>8-May-20</td>
<td>COVID-19 Infection in Children: Estimating Pediatric Morbidity and Mortality</td>
<td>medRxiv</td>
<td>Preprint</td>
<td>Data on pediatric cases were available from government websites for 23 of 70 countries with a minimum of 1000 reported cases by April 13, 2020. Of 424,978 cases in these 23 countries, 8,113 (1.9%) occurred in children. Nine publications provided data from 4,251 cases in 4 additional countries. Combining data from the websites and publications, admission occurred in 330 of 2361 cases (14%) where data were provided. The ICU admission rate was 2.2% of confirmed cases (44/2031) and 7.2% of admitted children (23/318), where data were provided on these parameters. Death was reported for 15 cases. The true incidence of pediatric infection and disease will only be known once testing is expanded to individuals with less severe or no symptoms.</td>
<td>Children accounted for 1.9% of confirmed cases reported from both publications and government websites. Admission rates vary from 0.3 to 10% of confirmed cases, with about 7% of admitted children requiring ICU care.</td>
<td>Forbes MB, Mehta K, Kumar K, et al. COVID-19 Infection in Children: Estimating Pediatric Morbidity and Mortality [published online 2020 May 8]. medRxiv. doi:10.1101/2020.05.05.20091751</td>
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<td>Human milk, immune response, secretory IgA antibodies</td>
<td>8-May-20</td>
<td>Evidence of a significant secretory-IgA-dominant SARS-CoV-2 immune response in human milk following recovery from COVID-19</td>
<td>medRxiv</td>
<td>Preprint</td>
<td>The extent of the human milk immune response to SARS-CoV-2 is unknown. This response is critical for infants and young children, who experience mild COVID-19 disease but are likely responsible for significant virus transmission. Perhaps even more significant is the fact that milk anti-bodies (Abs) could be purified and used as a COVID-19 therapeutic, given they would likely be of the secretory (s) class and highly resistant to proteolytic degradation in respiratory tissue. In this preliminary report, 15 milk samples obtained from donors previously-infected with SARS-CoV-2, as well as 10 negative control samples obtained pre-pandemic, were tested for reactivity to the Receptor Binding Domain of the SARS-CoV-2 Spike protein by ELISA assays measuring IgA, IgG, IgM, and secretory Ab. 80% of samples obtained post-pandemic exhibited IgA reactivity, and all these samples were also positive for secretory Ab reactivity, suggesting the IgA is predominantly sIgA. COVID-19 group mean optical density (OD) values of undiluted milk were significantly greater for IgA (p=0.0001), secretory-type Abs (p=0.0001), and IgG (p=0.017), but not for IgM, compared to pre-pandemic group mean values.</td>
<td>These data indicate that there is strong sIgA-dominant SARS-CoV-2 immune response in human milk after infection.</td>
<td>Fox A, Marino J, Amanat F, et al. Evidence of a significant secretory-IgA-dominant SARS-CoV-2 immune response in human milk following recovery from COVID-19 [published online 2020 May 8]. medRxiv. doi:10.1101/2020.05.04.20089995</td>
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<tr>
<td>Pediatrics, procalcitonin, biomarkers, area under curve, differential diagnosis, viral co-infection</td>
<td>8-May-20</td>
<td>Clinical features of suspected pediatric patients with 2019 novel coronavirus infection and the role of procalcitonin in early differential diagnosis</td>
<td>medRxiv</td>
<td>Preprint</td>
<td>As a traditional biomarker, procalcitonin (PCT) has shown superior value in differentiating bacterial and viral infections as well as bacterial co-infections. However, the role of PCT in differentiating between viruses or viral co-infections in children remains unknown. This retrospective analysis aims to investigate the role of PCT in early differential diagnosis of COVID-19 in children. Of 77 suspected pediatric cases of COVID-19, 39 (50.6%) were confirmed. Of these, 4 (5.2%) had viral co-infection. Compared with the non-COVID-19 group (n=33) and the co-infection group (n=4), PCT of the COVID-19 confirmed group (n=35) was significantly reduced (0.05ng/ml [0.029-0.076] vs 0.103ng/ml [0.053-0.21]; P&lt;.001 and vs. 0.144ng/ml [0.109-2.26]; P=.003). The area under curve (AUC) of the overall model is 0.817 ([95%CI [0.719-0.916]], P&lt;.001). The AUC of PCT is 0.792 ([0.688-0.896]; P=.001). The cut-off value is 0.1ng/ml.</td>
<td>The authors of this study conclude that, with moderate efficacy, PCT can provide an important basis for differentiating COVID-19 alone, other viral infection, or viral coinfection.</td>
<td>Peng D, Zhang J, Xu Y, Liu Z, Wu P. Clinical features of suspected pediatric patients with 2019 novel coronavirus infection and the role of procalcitonin in early differential diagnosis [published online 2020 May 8]. medRxiv. doi:10.1101/2020.04.07.20057315</td>
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<td>Pregnancy, labor, social distancing, social support</td>
<td>8-May-20</td>
<td>Coronavirus Disease 2019 (COVID-19) and Pregnancy Combating Isolation to Improve Outcomes</td>
<td>Obstetrics &amp; Gynecology</td>
<td>Current Commentary</td>
<td>With the current global pandemic, new challenges arise as social distancing and isolation have become the standard for safety. Evidence supports the protective benefits of social connections and support during pregnancy and labor. As health care professionals take appropriate precautions to protect patients and themselves from infection, there must be a balance to ensure that the importance of social and emotional support during important milestones, such as pregnancy and childbirth, are not neglected. Resources are available to help pregnant women, and technology represents an opportunity for innovation in providing care.</td>
<td>Social and emotional support have protective benefits during pregnancy and labor and should be preserved in an era of social distancing measures.</td>
<td>Jago CA, Singh SS, Moretti F. Coronavirus Disease 2019 (COVID-19) and Pregnancy Combating Isolation to Improve Outcomes [published online 2020 May 8]. Obstet Gynecol. doi:10.1097/AOG.00000000000053946</td>
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<td>Pregnancy, hospitalization, ARDS, preterm delivery, cardiac arrest, United States</td>
<td>8-May-20</td>
<td>Clinical course of severe and critical COVID-19 in hospitalized pregnancies: a US cohort study</td>
<td>American Journal of Obstetrics &amp; Gynecology MFM</td>
<td>Original Research</td>
<td>This cohort study presents 64 pregnant women with COVID-19, hospitalized at 12 U.S. institutions between March 5 and April 20, 2020. 44/64 (69%) had severe disease, and 20/64 (31%) had critical disease. The following pre-existing comorbidities were observed: 25% had a pulmonary condition, 17% had cardic disease, and the mean BMI was 34 kg/m(^2). Gestational age was a mean of 29±6 weeks at symptom onset and 30±6 weeks at hospital admission. The median duration of hospital stay was 6 days for severe and 10.5 days for critical patients (p=0.01). In women with critical disease, prone positioning was performed in 20% of cases, the rate of ARDS was 70%, and re-intubation was necessary in 20%. There was one case of maternal cardiac arrest, but no cases of cardiomyopathy and no maternal deaths. 32 (50%) women in this cohort delivered during the course of hospitalization. 15/17 (88%) of pregnant women with critical COVID-19 had preterm delivery, 94% of them via cesarean. There were no stillbirths, neonatal deaths, or cases of vertical transmission.</td>
<td>In this study of severe and critical COVID-19 in pregnant women, there was a high rate of ARDS, one case of cardiac arrest, but no deaths reported.</td>
<td>Pierce-Williams R, Burd J, Felder L, et al. Clinical course of severe and critical COVID-19 in hospitalized pregnancies: a US cohort study [published online 2020 May 8]. AJOG MFM. doi:10.1016/j.ajogmf.2020.100134</td>
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<td>Pregnancy, placental swab, fetal membrane swab, intrapartum viral exposure, vertical transmission, New York</td>
<td>8-May-20</td>
<td>Detection of SARS-CoV-2 in Placental and Fetal Membrane Samples</td>
<td>American Journal of Obstetrics &amp; Gynecology MFM</td>
<td>COVID-19 Pregnancy Research</td>
<td>Of 32 COVID-19 positive pregnant patients who gave birth between March 1 and April 20, 2020 at NYU Langone Health, placental or membrane swabs were collected from 11 patients. Placental swabs were obtained from the amniotic surface after clearing the surface of maternal blood. Membrane swabs were obtained from between the amnion and chorion after manual separation of the membranes. Three of 11 swabs were positive for SARS-CoV-2 RNA on RT-PCR. None of the neonates tested positive for SARS-CoV2 on days of life 1 through 5, and none displayed symptoms of COVID-19. While there were no clinical signs of vertical transmission, these findings raise the possibility of intrapartum viral exposure. Given the mixing of maternal and fetal fluid and tissue during delivery, the origin of detected SARS-CoV-2 RNA may represent contamination from maternal blood, amniotic fluid, or COVID-19 infection of the membranes and amniotic sac. For infants who were delivered vaginally, contamination with vaginal secretions is also a possible source. Many neonates in this study were born via cesarean section, with decreased length of exposure to potentially contaminated tissues.</td>
<td>SARS-CoV-2 RNA was detected in 3/11 placental or membrane swab samples, suggesting the possibility of intrapartum viral exposure. However, no neonates tested positive for COVID-19 in this study.</td>
<td>Penfield CA, Brubaker SG, Limaye MA, et al. Detection of SARS-CoV-2 in Placental and Fetal Membrane Samples [published online 2020 May 8]. AJOG MFM. doi:10.1016/j.ajogmf.2020.100133</td>
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<td>Postpartum death, maternal mortality, multi-organ failure, cardiopulmonary arrest, New York</td>
<td>8-May-20</td>
<td>A Postpartum Death Due to Coronavirus Disease 2019 (COVID-19) in the United States</td>
<td>Obstetrics &amp; Gynecology</td>
<td>Case Report</td>
<td>A 36-year-old patient at 37 weeks' gestation presented with 1-week history of shortness of breath, fever, cough, and sore throat, to a hospital in Queens, New York. Within 3 hours of admission, she experienced respiratory distress, required intubation, and underwent cesarean delivery and transfer to the intensive care unit. She subsequently decompensated, with multiorgan failure, sepsis, and cardiopulmonary arrest within 36 hours of initial presentation, despite aggressive supportive care and investigational therapies. The pathogenesis leading to rapid deterioration is unknown.</td>
<td>In this case report from Queens, New York, a third trimester pregnant patient with COVID-19 experienced rapid onset of critical complications that proved fatal, despite an indolent presentation.</td>
<td>Vallejo V, Ilagan JG. A Postpartum Death Due to Coronavirus Disease 2019 (COVID-19) in the United States [published online, 2020 May 8]. Obstet Gynecol. 2020. doi:10.1097/AOG.0000000000003950</td>
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<td>Children, age-related susceptibility, host factors, protective immunity</td>
<td>8-May-20</td>
<td>Lessons From COVID-19 in Children: Key Hypotheses to Guide Preventative and Therapeutic Strategies</td>
<td>Clinical Infectious Diseases</td>
<td>Review Article</td>
<td>The COVID-19 pandemic reveals a peculiar trend of milder disease and lower rates of case fatality in children compared to adults. Consistent epidemiologic evidence of reduced severity of infection in children across different populations and countries suggests there are underlying biologic differences between children and adults that mediate differential disease pathogenesis. The current review summarizes the current knowledge of pediatric clinical disease, role in transmission, risks for severe disease, protective immunity, as well as novel therapies and vaccine trials for children. The authors define key hypotheses and areas for future research that can use the pediatric model of disease, transmission, and immunity to develop preventive and therapeutic strategies for people of all age groups.</td>
<td>Authors review hypotheses, related to host factors and protective immunity between children and adults, that may explain differences in case fatality and severity of COVID-19 disease.</td>
<td>Singh T, Heston SM, Langel SN, et al. Lessons from COVID-19 in children: Key hypotheses to guide preventative and therapeutic strategies [published online, 2020 May 8]. Clin Infect Dis. 2020. doi:10.1093/cid/ciaa574</td>
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<td>Pregnancy, ARDS, preterm delivery, placental pathology, neonatal serology, San Francisco, CA</td>
<td>8-May-20</td>
<td>Acute Respiratory Distress Syndrome in a Preterm Pregnant Patient With Coronavirus Disease 2019 (COVID-19)</td>
<td>Obstetrics &amp; Gynecology</td>
<td>Case Report</td>
<td>This case report describes a pregnant woman at 28 weeks' gestation, who developed acute respiratory distress syndrome (ARDS) from SARS-CoV-2 infection. Her medical history was significant for moderate asthma, gestational diabetes mellitus, obesity, and three prior cesarean deliveries. The patient’s deteriorating respiratory condition prompted uncomplicated cesarean delivery; her oxygenation and respiratory mechanics improved within hours of delivery, though she required prolonged mechanical ventilation until postpartum day 10. After birth, the newborn was resuscitated and intubated for respiratory distress; he was clinically stable at day 16 of life. Neonatal oral, nasopharyngeal, and rectal swabs for SARS-CoV-2, as well as COVID-19 IgG and IgM, were all negative. Placental pathology showed acute chorioamnionitis, with no histologic evidence of other placental infections.</td>
<td>In this case report, early delivery improved respiratory_function in a pregnant patient with ARDS requiring positive-pressure ventilation. A preterm male neonate was delivered via cesarean section and tested negative for both SARS-CoV-2 viral RNA on RT-PCR and COVID-19 serologies.</td>
<td>Blauvelt CA, Chiu C, Donovan AL, et al. Acute Respiratory Distress Syndrome in a Preterm Pregnant Patient With Coronavirus Disease 2019 (COVID-19) [published online, 2020 May 8]. Obstet Gynecol. 2020. doi:10.1097/AOG.0000000000003949</td>
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<td>Maternal psychological stress, fetal growth, neurodevelopmental disorders</td>
<td>8-May-20</td>
<td>The COVID-19 Pandemic, Psychological Stress During Pregnancy, and Risk of Neurodevelopmental Disorders in Offspring: A Neglected Consequence</td>
<td>Journal of Psychosomatic Obstetrics &amp; Gynecology</td>
<td>Letter to the Editor</td>
<td>Psychological stress is an emerging challenge of the COVID-19 pandemic and may be more prevalent among pregnant women than other individuals, although data are lacking. Maternal psychological distress (e.g. stress, anxiety, and depression) has been found to be a risk factor for child or adult neurodevelopmental disorders, as well as attention deficit hyperactivity disorder, autism spectrum disorder, schizophrenia spectrum disorders, antisocial behavior and depressive symptoms. Psychosocial stress can augment maternal inflammation and changes in the hypothalamo-pituitary-adrenal (HPA)-axis related hormones. These changes consequently impact fetal neural development and may be involved in the etiopathogenesis of neurodevelopmental disorders of offspring.</td>
<td>The authors suggest that psychological stress during the COVID-19 pandemic during pregnancy may have an adverse impact on fetal growth and neurodevelopmental disorders.</td>
<td>Abdoli A, Falahi S, Kenarkooi A, et al. The COVID-19 pandemic, psychological stress during pregnancy, and risk of neurodevelopmental disorders in offspring: a neglected consequence [published online, 2020 May 8]. J Psychosom Obstet Gynaecol. 2020;1-2. doi:10.1080/0167482X.2020.1761321</td>
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<td>Quarantine, parenthood, reproduction, Italy</td>
<td>7-May-20</td>
<td>Desire for parenthood at the time of COVID-19 pandemic: an insight into the Italian situation</td>
<td>Journal of Psychosomatic Obstetrics &amp; Gynecology</td>
<td>Original Research</td>
<td>This study evaluated the impact of the COVID-19 pandemic on couples of reproductive age in Italy and on their desire for parenthood. A quantitative correlational research study based on a web survey was conducted among Italian men and women 18 to 49 years of age in heterosexual stable relationships. The self-administered questionnaire was created using Google Forms and posted on chats and social networks three weeks after the beginning of the lockdown in Italy. Participants were asked about their mood before and during the quarantine using a scale from 1 to 10 (1 = no wellbeing; 10 = total wellbeing). Couples' quality of life and their reproductive desire were evaluated. 1482 respondents were included: 944 women (63.7%) and 538 men (36.3%). Participants reported significantly lower well-being scores during quarantine compared to before (mean score of 6.0 during quarantine (IQR: 4.0–7.0) compared to 7.0 before (IQR: 6.0–8.0), p &lt; 0.01). 18.1% of participants were planning to have a child before the pandemic, of these 37.3% abandoned the intention. The main reasons reported were worries of future economic difficulties and consequences of COVID-19 on pregnancy. Of 81.9% who did not intend to conceive prior to quarantine, 11.5% desired parenthood during quarantine (p &lt;0.01), reporting a desire to change something in their lives and a need for positivity as the most common reasons. 4.3% of those not intending to conceive prior to quarantine reported actually trying to get pregnant. This study investigates Italian couples' overall well-being and reproductive desires before and after the implementation of lockdown to prevent the spread of COVID-19. Anticipated economic difficulties and uncertainty around the virus were common reasons to decide against conception, conversely, a need for change and positivity were reported as reasons to conceive.</td>
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<td>Contraception, adolescents, essential care, virtual visits, telemedicine</td>
<td>7-May-20</td>
<td>Providing Contraception for Young People During a Pandemic Is Essential Health Care</td>
<td>JAMA Pediatrics</td>
<td>Viewpoint</td>
<td>Many reproductive health care services can be performed virtually, including contraception counseling, provision and maintenance of regular and emergency contraception, and sexual risk-reduction counseling. The authors propose a virtual visit approach for providing contraception to adolescents during COVID-19 that minimizes the need for in-person visits: first ensure privacy, exclude a current pregnancy, assess current contraceptive use and satisfaction, use shared decision making about contraceptive options, evaluate for contra-indications, and finally provide prescriptions and instructions (including bridge methods for those desiring long-acting reversible contraceptive methods). Due to the high safety profile of contraception, the authors conclude it is imperative to prioritize contraception access for young people throughout the pandemic as essential health care. The authors provide a framework for virtual contraceptive care for adolescents and review some of the options available during the pandemic.</td>
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<td>Pregnancy, asymptomatic, transmission, universal screening, United Kingdom, New York</td>
<td>7-May-20</td>
<td>Severe acute respiratory syndrome coronavirus 2 in pregnancy: asymptomatic pregnant women are only the tip of the iceberg</td>
<td>American Journal of Obstetrics and Gynecology</td>
<td>Letter to the Editor</td>
<td>Universal screening of pregnant women has several potential benefits: reducing the risk of asymptomatic transmission to healthcare workers and other pregnant women, early patient isolation and use of appropriate personal protective equipment, and improving the understanding of perinatal transmission. The prevalence of SARS-CoV-2 in pregnant women admitted for delivery in a New York, USA hospital between March 22 and April 4, 2020, was 15.4% (33 of 215), and of these 33 women, 29 (88%) were asymptomatic. In London, United Kingdom, pregnant women admitted to The Portland Hospital for Women and Children were universally screened for SARS-CoV-2 starting March 27, 2020. As of April 20, 2020, 129 women had been tested on admission; 9 (7.0%) had a positive test result, and of these 9 women, 8 (88.9%) were asymptomatic. All asymptomatic women and their infants remained well, but the high proportion of asymptomatic women</td>
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### Key Terms
- Palliative care, prognostication, proactive planning, prognosis
- SARS, children
- Palliative care, planning
- Prognostication
- Palliative care, Prognostication
- Prognostication

### Table

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<td>Palliative care, prognostication, proactive planning, prognosis</td>
<td>7-May-20</td>
<td>Prognostication and Proactive Planning in COVID-19</td>
<td>Journal of Pain and Symptom Management</td>
<td>Original Article</td>
<td>How coronavirus affects the brain is not known, and there is the possibility for multitude of neurological complications. This case report studied an 11-year-old who initially presented with encephalitis and was subsequently diagnosed with COVID-19.</td>
<td>The authors provide mortality and morbidity data from various patients’ groups. Patients aged 15–17 years old were the most common pediatric age group to be infected, but hospitalization was most common in patients aged less than one year.</td>
<td>Newport KB, Malhotra S, Widera E. Prognostication and Proactive Planning in COVID-19. [published online, 2020 May 7]. J Pain Symptom Manage. doi:10.1016/j.jpainsymman.2020.04.152</td>
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<td>SARS, children, epidemiology, clinical characteristics, pathogenesis</td>
<td>7-May-20</td>
<td>From SARS to COVID-19: What we have learned about children infected with COVID-19</td>
<td>International Journal of Infectious Diseases</td>
<td>Review</td>
<td>SARS-CoV and SARS-CoV-2 have certain similarities. To date, research has shown that their genes exhibit 79% of identical sequences and the receptor-binding domain structure is also very similar. This review drew upon the lessons learned from SARS, in terms of epidemiology, clinical characteristics, and pathogenesis, to further understand the features of COVID-19. By comparing the two diseases, it found that COVID-19 has a quicker and wider transmission, obvious family agglomeration, and higher morbidity and mortality. Newborns, asymptomatic children, and normal chest imaging cases emerged in COVID-19 literature. Children starting with gastrointestinal symptoms may progress to severe conditions and newborns whose mothers are infected with COVID-19 could have severe complications. The laboratory test data showed that the percentage of neutrophils and the level of LDH is higher, and the number of CD4+ and CD8+ T-cells is decreased in children’s COVID-19 cases. Based on these early observations, as pediatricians, this review put forward some thoughts on children’s COVID-19 and gave some recommendations to contain the disease.</td>
<td>This paper summarized the differences and similarities between children’SARS and COVID-19, as well as potential reasons for higher transmissibility of COVID-19 and why children infected with COVID-19 have mild clinical symptoms.</td>
<td>Zhou MY, Xie KL, Peng YS, et al. From SARS to COVID-19: What we have learned about children infected with COVID-19. Int J Infect Dis. 2020;96:710-714. doi:10.1016/j.ijid.2020.04.090</td>
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<td>Children, youth, epidemiology, Canada</td>
<td>7-May-20</td>
<td>Laboratory-confirmed COVID-19 in Children and Youth in Canada, January 15-April 27, 2020</td>
<td>Canada Communicable Disease Report</td>
<td>Update</td>
<td>As of April 27, 2020, provinces and territories provided the Public Health Agency of Canada with detailed information on 24,079 cases of COVID-19, of which 3.9% (n=938) were younger than 20 years of age. The detection rate per 100,000 population was lower in this age group (11.9 per 100,000), compared with those aged 20-59 years (72.4 per 100,000) and 60 and older (113.6 per 100,000). The median age among those younger than 20 years of age was 13 years, and cases were distributed equally across male and female genders. Among provinces and territories with more than 100 cases, 1.6% to 9.8% of cases were younger than 20 years of age. Cases in this age group were more likely to be asymptomatic: 10.7% compared with 2.4% in those aged 20-59 years and 4.1% in those aged 60 and older. Children and youth experienced severe outcomes less often, but 2.2% (n=15/672) of cases within this age group were severe enough to require hospitalization. Based</td>
<td>This report provides data on the epidemiology of COVID-19 among children and youth in Canada, which align with those from other countries.</td>
<td>Paquette D, Bell C, Roy M, et al. Laboratory-confirmed COVID-19 in children and youth in Canada, January 15-April 27, 2020. Can Commun Dis Rep. 2020;46(5):121-124. doi:10.14745/ccdr.v46i06a04</td>
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<td>Pregnancy, maternal fetal medicine, intubation, acute respiratory distress, counseling, USA</td>
<td>7-May-20</td>
<td>Severe COVID-19 Transmitted Household A Child With Outcomes of pediatric COVID-19 in Wuhan Children's Hospital</td>
<td>Case Reports in Women's Health</td>
<td>Case Report</td>
<td>A 36-year-old (gravid 2, para 1) African American woman positive for COVID-19 at 23 weeks of gestation with severe disease required admission to the intensive care unit and intubation. She completed 5 days of hydroxychloroquine and 7 days of prednisone. She was successfully intubated after 8 days and discharged home in a stable condition without preterm delivery on hospital day 11. Fetal considerations, particularly in the peri-viable gestational age window of this patient, often distract from clinical decision-making; there is limited experience with respiratory collapse requiring mechanical ventilation for COVID-19 pneumonia to determine if delivery facilitates maternal resuscitation or hinders it. Counseling should highlight the balance of risk and benefit for maternal and fetal status but should underscore the precept that there rarely exists a disconnect between maternal and fetal interests.</td>
<td>A case of severe COVID-19 pneumonia in a pregnant patient highlights various aspects of complex intensive care as well as the need for counseling on indications for delivery based on both maternal and fetal status.</td>
<td>Hong L, Smith N, Keerthy M, et al. Severe COVID-19 infection in pregnancy requiring intubation without preterm delivery: A case report [published online 2020 May 7]. Case Rep Womens Health. doi:10.1016/j.crwh.2020.e0218</td>
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<td>Nutrition, micronutrients, anti-inflammatory properties, cytokine storm, comorbidities</td>
<td>7-May-20</td>
<td>Coronavirus Disease (COVID-19–SARS-CoV-2) and Nutrition: Is Infection in Italy Suggesting a Connection?</td>
<td>Frontiers in Immunology; Nutritional Immunology</td>
<td>Mini Review Article</td>
<td>This article speculates on a possible link between nutritional status and COVID-19 mortality, based on data emerging from the Italian National Health System. Both diabetes and obesity impair the immune response to viral infections, are associated with chronic low-grade inflammation, and may increase risk of mortality. While waiting for clinical trials to shed light on the clinical efficacy and beneficial effects of antibodies and anti-inflammatory cytokines, the authors highlight nutritionally derived products (various micronutrients e.g. vitamins, folic acid, iron, selenium, and zinc, as well as macronutrients e.g. omega 3 fatty acids and bioactive components e.g. polyphenols) that may inhibit the inflammatory cytokine secretion caused by SARS-CoV-2 infection.</td>
<td>Poor nutrition is linked to poor immune defense; nutritionally derived products may help alleviate COVID-19-induced inflammation.</td>
<td>Cena H, Chiappa M. Coronavirus Disease (COVID-19–SARS-CoV-2) and Nutrition: Is Infection in Italy Suggesting a Connection? [published online 2020 May 7]. Front Immunol. doi:10.3389/fimmu.2020.00944</td>
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<td>Children, clinical characteristics, antiviral treatment, China</td>
<td>7-May-20</td>
<td>Coronavirus Disease 2019 in Children: Characteristics, Antimicrobial Treatment, and Outcomes</td>
<td>Journal of Clinical Virology</td>
<td>Original Article</td>
<td>This study retrospectively summarizes the characteristics, treatment and outcomes of pediatric cases of COVID-19 in Wuhan Children's Hospital. As of February 29, 2020, 75 children (mean age 6.1 years, range 1 month–15 years) were discharged; of these, one had severe pneumonia and one had critical disease. Children younger than 2 years accounted for the highest proportion (28%) of pediatric COVID-19 cases. All patients received interferon-α nebulization, and eight cases (including the severe and critical cases) were co-administered ribavirin. Five patients with mild pneumonia were given arbidol. Twenty-three patients were given traditional Chinese medicine. The average length of stay and the time of SARS-CoV-2 clearance were 10.6 and 6.4 days, respectively.</td>
<td>The severity of COVID-19 in pediatric cases, reported here, were milder than adults. The efficacy of antiviral therapy in children with COVID-19 remains to be evaluated.</td>
<td>Peng H, Gao P, Xu Q, et al. Coronavirus disease 2019 in children: Characteristics, antimicrobial treatment, and outcomes [published online 2020 May 7]. J Clin Virol. doi:10.1016/j.jcv.2020.104425</td>
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<td>Child, household transmission, lymphocyte count, stool samples, China</td>
<td>7-May-20</td>
<td>A Child With Househoold Transmitted COVID-19</td>
<td>BMC Infectious Diseases</td>
<td>Case Report</td>
<td>A 14-month-old boy was admitted to the hospital with a symptom of fever and was diagnosed with a mild form of COVID-19. The patient's mother and grandmother also tested positive for SARS-CoV-2 RNA. However, the patient's lymphocyte counts were normal. Chest CT revealed scattered ground glass opacities in the right lower lobe and resorption after treatment. The patient continued to test positive for SARS-CoV-2 RNA in nasopharyngeal swabs and stool samples at 17 days after the disappearance of symptoms. The authors suggest that attention should be given to the potential contagiousness of pediatric COVID-19 cases after clinical recovery.</td>
<td>This case report on pediatric COVID-19 features mild symptoms and extended positivity of SARS-CoV-2 RNA in stool and nasopharyngeal swabs after the disappearance of symptoms.</td>
<td>Mao LJ, Xu J, Xu ZH, et al. A child with household transmitted COVID-19. BMC Infect Dis. 2020;20(1):329. Published 2020 May 7. doi:10.1186/s12879-020-05056-w</td>
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<td>Children, humoral immunity, immune characteristics, Spike protein, neutralizing antibodies, serum</td>
<td>7-May-20</td>
<td>Protective humoral immunity in SARS-CoV-2 infected pediatric patients</td>
<td>Cellular &amp; Molecular Immunology</td>
<td>Correspondence</td>
<td>This report describes characteristics of immune response after SARS-CoV-2 attack in 6 children (range: 7-131 months), who tested positive by RT-PCR, and 5 uninfected controls, hospitalized during the same period without SARS-CoV-2 infection. Based on flow cytometry, lymphocyte count and percentages of CD3+, CD4+, and CD8+ T cells between infected and uninfected cases were comparable. However, the percentage of IgG+ in memory B cells was significantly higher in the infected group. In addition, Spike protein specific neutralizing antibodies against SARS-CoV-2 were detected in 5/6 children within 2-17 days post-infection. The absence of specific IgM antibodies after illness onset suggested that most of B cell class switching was completed within 1 week after virus exposure. Lastly, the authors collected serum from one infected patient and demonstrated its in vitro ability to block receptor binding between Spike protein and ACE2 protein, a vital pathway of SARS-CoV-2 entry and infection. These findings of protective humoral immunity in infected children, provide one possible explanation for milder symptoms in children after SARS-CoV-2 exposure.</td>
<td>Findings from this study provide evidence for protective humoral immunity (Spike protein specific neutralizing antibodies against SARS-CoV-2) in infected children, which may explain milder symptoms observed in the pediatric population.</td>
<td>Zhang Y, Xu J, Jia R, et al. Protective humoral immunity in SARS-CoV-2 infected pediatric patients. Cell Mol Immunol. <a href="https://doi.org/10.1038/s41423-020-0438-3">https://doi.org/10.1038/s41423-020-0438-3</a></td>
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<td>Children, adolescents, clinical characteristics, preliminary data, Italy</td>
<td>7-May-20</td>
<td>Multicentre Italian Study of SARS-CoV-2 infection in Children and Adolescents, Preliminary Data as at 10 April 2020</td>
<td>European Surveillance</td>
<td>Rapid Communication</td>
<td>This report presents preliminary results of an Italian multi-center study of 168 laboratory-confirmed pediatric cases of COVID-19 (median age: 2.3 years, range: 1 day-17.7 years, 55.9% male), of which 67.9% were hospitalized and 19.6% had comorbidities. 67.3% (113/168) of children had at least one parent who tested positive for SARS-CoV-2 infection. All but four (2.5%) enrolled children were symptomatic. Fever was the most common symptom; 31 children developed gastrointestinal symptoms, and 5 had seizures. Over the course of hospitalization, 33 children (19.6%) developed complications, such as interstitial pneumonia (n=26), severe acute respiratory illness (n=14) and peripheral vasculitis (n=1); two of the 33, a preterm neonate and a 2-month-old infant with congenital heart disease, required intensive care. Viral co-infection was documented in 10 children (5.9%). In total, 49 children received experimental treatments. All patients in the study recovered.</td>
<td>This report presents preliminary data from a multi-center study of pediatric COVID-19 cases in Italy, confirming low case fatality and favorable clinical course in children.</td>
<td>Garazzino S, Montagnani C, Donà D, et al. Multicentre Italian study of SARS-CoV-2 infection in children and adolescents, preliminary data as at 10 April 2020. Euro Surveill. doi:10.2807/1560-7917.ES.2020.25.18.200060</td>
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<td>Pregnancy, neonatal infection, emergency caesarean section, London, UK</td>
<td>7-May-20</td>
<td>Re: Novel Coronavirus COVID-19 in late pregnancy: outcomes of first nine cases in an inner city London hospital</td>
<td>European Journal of Obstetrics &amp; Gynecology and Reproductive Biology</td>
<td>Correspondence</td>
<td>The authors report on 9 cases of laboratory-confirmed COVID-19 in mothers who delivered at an inner-city hospital in London, between March 7 and April 22, 2020. The median age and gestation at delivery were 31 years (range 18-39 years) and 39 weeks (range 27-39 weeks) respectively. 7/9 (89%) women had mild to moderate prodromal symptoms that warranted high level of suspicion for screening. 2 of the 9 women delivered via emergency caesarean section (CS) due to deteriorating maternal respiratory function; accompanying lymphopenia was a notable clinical feature in these cases. Of the remaining 7 women, 1 mother had a vaginal delivery, 6 underwent elective CS for obstetric indications, while an emergency CS was performed in 1 woman for suboptimal cardiotocography. All neonates were immediately isolated from mothers at birth; only 1 neonate (born to the most respiratorily-compromised mother) developed signs of pneumonia on day 6 of life and was confirmed to have SARS-CoV-2 based on nasopharyngeal RT-PCR.</td>
<td>In this case series of 9 mothers with COVID-19 from London, 2 women with deteriorating respiratory function delivered via emergency caesarean section. One neonate tested positive for SARS-CoV-2 infection.</td>
<td>Govind A, Essien S, Kartikeyan A, et al. Re: Novel Coronavirus COVID-19 in late pregnancy: outcomes of first nine cases in an inner city London hospital [published online, 2020 May 7]. Eur J Obstet Gynecol Reprod Biol. 2020;doi:10.1016/j.ejogrb.2020.05.004</td>
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<td>Pregnancy, hospitalization, ICU admission, non-pregnant women, New York State</td>
<td>7-May-20</td>
<td>Intensive Care Unit Admissions for Pregnant and Non-Pregnant Women with COVID-19</td>
<td>American Journal of Obstetrics &amp; Gynecology</td>
<td>Research Letter</td>
<td>Of all acutely symptomatic patients evaluated at a large hospital system in New York State, between March 2 and April 9, 2020, 1,168 symptomatic patients were diagnosed with COVID-19. Of these, 332 (28.4%) were non-pregnant women, and 82 (7.0%) were pregnant women. Of these pregnant symptomatic patients with diagnosed COVID-19, 2.8% had only mild respiratory disease and were admitted for obstetrical indications. In total, 50 non-pregnant women (15.1%, 50/332) and 8 pregnant women (9.8%, 8/82) were admitted to the ICU for worsening respiratory status, a difference that was not statistically significant (p=0.22).</td>
<td>The authors conclude that hospitalized pregnant women with COVID-19 are not at increased risk for ICU admission compared to their non-pregnant counterparts.</td>
<td>Blitz MJ, Grünebaum A, Tekbali A, et al. Intensive Care Unit Admissions for Pregnant and Non-Pregnant Women with COVID-19 [published online 2020 May 7]. AJOG. doi:10.1016/j.ajog.2020.05.004</td>
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<td>Children, neonates, pregnancy, clinical surveillance, Public Health England, UK</td>
<td>7-May-20</td>
<td>Prioritising Paediatric Surveillance During the COVID-19 Pandemic</td>
<td>Archives of Disease in Childhood</td>
<td>Editorial</td>
<td>This editorial describes efforts to collect surveillance data by Public Health England (PHE), which receives electronic notifications of all confirmed COVID-19 cases in children, from National Health Service (NHS) hospital laboratories in the UK. PHE is also working on a collaborative effort to conduct clinical surveillance of COVID-19 in neonates from birth up to 28 days of life through the British Pediatric Surveillance Unit, which will be linked to the UK Obstetric Surveillance System. Lastly, PHE is conducting sample collections to assess risk of vertical transmission in pregnant women with COVID-19, as well as seroprevalence surveys in children.</td>
<td>Public Health England is an executive agency, working in collaboration with the UK health system, to conduct clinical surveillance of COVID-19 in children, neonates, and pregnant women.</td>
<td>Ladhani SN, Amin-Chowdhury Z, Amrithalingam G, et al. Prioritising paediatric surveillance during the COVID-19 pandemic [published online, 2020 May 7]. Arch Dis Child. 2020. doi:10.1136/archdischild-2020-319363</td>
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<td>Children, primary care, routine care, International Pediatric Association</td>
<td>7-May-20</td>
<td>Promoting and Supporting Children’s Health and Healthcare During COVID-19 - International Paediatric Association Position Statement</td>
<td>Archives of Disease in Childhood</td>
<td>Original Research</td>
<td>This paper provides recommendations from the International Pediatric Association (IPA) for children’s health and healthcare during COVID-19. The IPA is a membership organization of 169 pediatric societies, which includes 144 national pediatric societies, 10 regional pediatric societies, and 13 international pediatric specialty societies. The IPA outlines priorities for preserving newborn, child, and adolescent health during the COVID-19 crisis and beyond, where social distancing and lockdowns threaten access to routine care, immunization, and preventive services. The authors also recognize the need for specific strategies to reach children and youth at greatest risk, including those in low- and middle-income countries, as well as in fragile settings such as refugee camps.</td>
<td>This paper summarizes recommendations from the International Pediatric Association in preserving newborn, child, and adolescent health, by maintaining systems of primary care during the COVID-19 pandemic.</td>
<td>Klein JD, Koletzko B, El-Shabrawi MH, et al. Promoting and supporting children’s health and healthcare during COVID-19 - International Paediatric Association Position Statement [published online, 2020 May 7]. Arch Dis Child. 2020. doi:10.1136/archdischild-2020-319370</td>
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<td>Pregnancy, obstetric practice, implementatio n, New York, USA</td>
<td>7-May-20</td>
<td>Caring for Pregnant Patients with COVID-19: Practical Tips Getting from Policy to Practice</td>
<td>American Journal of Perinatology</td>
<td>Clinical Opinion</td>
<td>Authors from New York have experience caring for over 80 COVID-19 infected pregnant women at their institution and have encountered many challenges in applying new national standards for care. In this article, they review how to change outpatient and inpatient practices, as well as develop and disseminate new hospital protocols, and highlight the psychosocial challenges for pregnant patients and their providers.</td>
<td>Authors offer a blueprint for implementation of new standards of care for obstetric practice, to help providers and hospitals prepare as the number of COVID-19 cases increases in the United States.</td>
<td>London V, McLaren R Jr, Stein J, et al. Caring for Pregnant Patients with COVID-19: Practical Tips Getting from Policy to Practice [published online, 2020 May 7]. Am J Perinatol. 2020. doi:10.1055/s-0040-1710539</td>
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<td>Pregnancy, preterm neonate, breast milk sample, Belgium</td>
<td>7-May-20</td>
<td>COVID-19 in a 26-week preterm neonate</td>
<td>Lancet Child &amp; Adolescent Health</td>
<td>Case Report</td>
<td>An extremely preterm female neonate (26 gestational weeks + 4 days) was born at a tertiary level hospital in Brussels, Belgium, on March 1, 2020. The mother had been referred from a peripheral hospital for pre-eclampsia and suspected cholecystitis. During hospitalization, the mother developed HELLP (hemolysis, elevated liver enzymes, and low platelet count) syndrome and intramuscular corticosteroids were administered for fetal pulmonary maturation. The neonate was delivered by cesarean section 48 hours later and transferred to the NICU, where she received non-invasive intermittent positive pressure ventilation and surfactant therapy. Despite a pneumothorax requiring drainage, the neonate remained stable in a closed incubator throughout her admission. On day 6 after delivery, the mother’s nasopharyngeal swab tested positive for SARS-CoV-2, and the neonate tested positive the following day. Prior to the mother’s diagnosis, the neonate had received maternal expressed breast milk, which had tested negative for SARS-CoV-2. RT-PCR testing of the neonate’s nasopharyngeal swab was positive 7 days after the initial positive test and tested negative after 14 days; the mother tested negative only after 21 days.</td>
<td>This case study describes an extremely preterm neonate, born to a mother with COVID-19. Both were diagnosed with SARS-CoV-2 following delivery and remained clinically stable. A maternal breast milk sample tested negative for SARS-CoV-2 RNA.</td>
<td>Piersigilli F, Carkeek K, Hocq C, van Grambzean B, Hubinont C, Chatis O et al. COVID-19 in a 26-week preterm neonate [published online 2020 May 7]. Lancet Child &amp; Adolesc Health. doi:10.1016/S2352-4642(20)30140-1</td>
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<td>Pregnancy, vaginal swab, rectal swab, perineal contamination, cesarean vs. natural delivery</td>
<td>7-May-20</td>
<td>SARS-CoV-2 Possible Contamination of Genital Area: Implications for Sexual and Vertical Transmission Routes</td>
<td>Journal of the European Academy of Dermatology and Venereology</td>
<td>Letter to Editor</td>
<td>The SARS-CoV-2 virus can be transmitted from person to person, directly or indirectly, via the respiratory, oro-fecal and probably sexual routes. However, mother-to-child transmission through the placenta probably does not occur, or likely occurs very rarely. This letter proposes a decision algorithm that takes into account these possible routes of transmission. Routine RT-PCR assays for SARS-CoV-2 detection should be performed in all pregnant women, on nasopharyngeal, vaginal, and rectal swabs. The possibility of perineal contamination, including the vulvar-vaginal area, should also be considered. The authors suggest cesarean delivery should be performed if SARS-CoV-2 is detected on vaginal or rectal swabs; natural delivery could be otherwise permitted, since it has several advantages for maternal and neonatal health over cesarean section.</td>
<td>The authors suggest that cesarean delivery should be performed if SARS-CoV-2 viral RNA is detected in either vaginal or rectal swabs from a pregnant woman. Otherwise, natural delivery should be prioritized.</td>
<td>Delfino M, Guida M, Patri A, Spirito L, Gallo L, Fabbrocini G. SARS-CoV-2 possible contamination of genital area: implications for sexual and vertical transmission routes [published online, 2020 May 7]. J Eur Acad Dermatol Venereol. 2020. doi:10.1111/jdv.16591</td>
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<td>Children, pediatric immune system, asymptomatic carrier</td>
<td>7-May-20</td>
<td>COVID-19 in Newborns and Infants: Low Risk of Severe Disease: Silver Lining or Dark Cloud?</td>
<td>American Journal of Perinatology</td>
<td>Clinical Opinion</td>
<td>Data from China and the United States suggest a low prevalence of COVID-19 among neonates, infants, and children, with those affected not suffering from severe disease. In this article, the authors consider different theories to explain why this novel agent is sparing neonates, infants, and young children. These theories include the protective role of fetal hemoglobin in neonates; immature ACE2 interfering with viral entry into host cells; cross-immunity with other viral agents common in childhood; incomplete development of natural immunity leading to reduced risk for systemic inflammatory response syndrome (i.e. cytokine storm); differences in humoral immunity; and more efficient T-cells. The low severity of SARS-CoV-2 infection in the pediatric population is associated with a high incidence of asymptomatic or mildly symptomatic infection, making them efficient carriers and potentially major players in SARS-CoV-2 transmission to vulnerable adults.</td>
<td>Various features of the pediatric immune system are discussed to provide explanations for lower rates of infection and severe COVID-19 among children. Since most pediatric cases are asymptomatic, children are likely to be efficient carriers of infection according to the authors.</td>
<td>Rawat M, Chandrasekharan P, Hicar MD, Lakshminrusimha S. COVID-19 in Newborns and Infants: Low Risk of Severe Disease: Silver Lining or Dark Cloud? [published online, 2020 May 7]. Am J Perinatol. 2020. doi:10.1055/s-0040-1710512</td>
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### Key Terms

| Neonatal emergency transport system, standardized operational procedures, Italy | May 2020 | Neonatal Emergency Transport Service (NETS) is an essential service, especially during the COVID-19 pandemic. This report from the Veneto region of Italy presents the first recommendations available on how to reorganize NETS in order to centralize SARS-CoV-2 positive newborns and protect low-risk patients. The authors identify safe, standardized, operational procedures that are crucial for recognizing cases of SARS-CoV-2 infection in newborns, creating a pathway for the best stabilization and ambulance transport, and minimizing the risk of contamination while providing the best possible care for the newborn. | This report from Italy outlines standardized operational procedures for reorganizing a Neonatal Emergency Transport Service during the COVID-19, in order to minimize contamination risk and better stabilize potentially infected newborns. | Cavicchiolo ME, Doglioni N, Ventola MA, et al. Neonatal emergency transport system during COVID-19 pandemic in the Veneto Region: proposal for standard operating procedures [published online, 2020 May 7]. Pediatr Res. 2020. doi:10.1038/s41390-020-0937-z |

| Children, hospitalization, clinical characteristics, multicenter study, China | May 2020 | Reports analyzing pediatric patients with COVID-19, particularly outside Wuhan, China, are limited. This letter presents data on 46 hospitalized children (≤18 years), with SARS-CoV-2 positive RT-PCR results of throat swabs, from 4 tertiary-care hospitals in Guangdong, Hunan, and Hubei provinces, China between January 9 and March 9, 2020. The median age of children was 6 years (IQR: 4-14 years), and 32 children (70%) had at least one infected family member. All cases were non-severe by clinical examination, and no children had comorbidities. 22 children (48%) were asymptomatic at onset; none experienced gastrointestinal symptoms. 20 children (43%) had chest imaging abnormalities. None required mechanical ventilation or intensive care. All have been discharged, as of March 9. The median length of hospital stay was 15 days. Four children had positive rectal swabs but negative throat swabs after recovery. | This case series reports on 46 hospitalized children with SARS-CoV-2 infection from hospitals in 3 provinces of China, who had mild symptoms and favorable clinical course. | Zhang V, Liu S, Zhang J et al. Children hospitalized for coronavirus disease 2019 (COVID-19): a multicenter retrospective descriptive study [published online 2020 May 7]. Journal of Infection. doi:10.1016/j.jinf.2020.04.045 |

| Children, asymptomatic, hyperinflammatory syndrome, Kawasaki disease shock syndrome, child mortality, UK | May 2020 | During a period of 10 days in mid-April 2020, South Thames Retrieval Service (London, UK) noted an unprecedented cluster of eight children with hyperinflammatory shock, showing features similar to Kawasaki disease shock syndrome. Six of the eight children were of Afro-Caribbean descent, and five were boys. All children except one were well above the 75th centile for weight. Four children had known family exposure to COVID-19. All tested negative for SARS-CoV-2 infection during the course of hospitalization. Clinical presentations included unrelenting fever, variable rash, conjunctivitis, peripheral edema, and generalized extremity pain with significant gastrointestinal symptoms. All progressed to warm, vasoplectic shock, requiring hemodynamic support and mechanical ventilation for cardiovascular stabilization. One child developed arrhythmia with refractory shock and died from a large cerebrovascular infaract. Since discharge of the remaining patients, two of the children have tested positive for SARS-CoV-2 infection (including the child who died, in whom SARS-CoV-2 was detected postmortem). | A clinical picture of hyperinflammatory syndrome, with multiorgan involvement similar to Kawasaki disease shock syndrome, may represent a new phenomenon affecting previously asymptomatic children with SARS-CoV-2 infection. | Riphagen S, Gomez X, Gonzalez-Martinez C, Wilkinson N, Theocharis P. Hyperinflammatory shock in children during COVID-19 pandemic [published online 2020 May 7]. Lancet. doi:10.1016/S0140-6736(20)31094-1 |
### Key Terms
- Children, clinical trial enrollment, pediatric treatment
- Beta-methasone, hyperglycemia, insulin, pregnancy
- Pregnancy, maternal health, mental health

### Specific Observations
- The exclusion of children from the majority of clinical trials for COVID-19 therapies may lead to ineffective dosing or unsafe treatments, due to a lack of evidence in pediatric populations.
- This review investigates the effects of corticosteroids in pregnancies complicated by SARS-CoV-2, suggesting that the decision about the use of antenatal corticosteroids should be carefully made due to scarce reliable conclusions.
- As pregnant women and new mothers may be at increased risk of developing mental health problems during the COVID-19 pandemic, the authors suggest to develop proactive strategies to alleviate stress, with technology and Internet-based support as potentially valuable tools.

### Date Published
- 7-May-20
- 6-May-20
- 6-May-20

### Journal / Source
- JAMA Pediatrics
- Diabetology & Metabolic Syndrome
- Acta Obstetricia et Gynecologica Scandinavica

### Summary & Key Points
- Clinical trials of several therapies for COVID-19 are being rapidly designed or already enrolling patients, but few are currently enrolling children. Between February 1 and April 11, 2020, there were 275 COVID-19 interventional clinical trials registered on ClinicalTrials.gov, of which only 30 were open to any patients younger than 18 years. In addition, global large-scale trials by the National Institutes of Health and WHO plan to enroll only adults. The exclusion of children from COVID-19 clinical trials is a lost opportunity to generate timely knowledge to guide treatment of pediatric populations. Simple extrapolation from adult to pediatric patients may not account for developmental differences in pathophysiology and drug metabolism, leaving children vulnerable to ineffective dosing or possibly unsafe treatments. Past experience demonstrates that it is possible to enroll children in clinical trials during epidemics, like the 2014 Ebola epidemic.

- This review queried on the effects of corticosteroid use in pregnancies complicated by SARS-CoV-2. The authors performed a literature search using PubMed, regarding the use of corticosteroids in patients with SARS-CoV-2 infection, in pregnancies complicated by SARS-CoV-2, as well as their impact on glyceria in pregnant women with or without diabetes. SARS-CoV-2 infection appears to be a risk factor for complications in pregnancy. Corticosteroids may not be recommended for treating SARS-CoV-2 pneumonia since they may delay virus clearance from the body, but they may be needed for at-risk pregnancies. Corticosteroids in pregnancy have a diabetogenic potential. The authors state that hyperglycemia in pregnancy complicated by SARS-CoV-2 infection and requiring medical intervention, should be treated by insulin. SARS-CoV-2 and other coronaviruses may have effects on glycemia. Caution should be exercised while using corticosteroids in pregnant women with COVID-19 requiring preterm delivery.

- The impact of the COVID-19 pandemic on maternal mental health is not yet fully understood. The authors express concern for the effects of stress-related to COVID-19, and in particular unintended consequences of COVID-19-related preventive measures on the mental health of pregnant women and new mothers. Negative psychological effects could lead to increased use of harmful coping methods, and there is also concern for an increase in gender-based intimate partner violence, a reduction in preventive help-seeking behavior, and an increase in suicide rates. The authors express further concern that mental health needs are overshadowed by more pressing issues during this crisis.
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<th>Key Terms</th>
<th>Date Published</th>
<th>Title</th>
<th>Journal / Source</th>
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<th>Summary &amp; Key Points</th>
<th>Specific Observations</th>
<th>Full Citation</th>
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<tr>
<td>Newborns, neonate, postnatal transmission, breastfeeding</td>
<td>6-May-20</td>
<td>Newborns at Risk of COVID-19</td>
<td>Journal of Perinatal Medicine</td>
<td>Editorial</td>
<td>Newborns can be infected with SARS-CoV-2, and transmission is thought to primarily occur postnatally. Guidelines for the care of COVID-19-positive or suspected-positive mother-infant duos in the immediate post-natal period have been put forth, but there are differences in the proposed approaches. The authors discuss the strategies recommended by China, the European Society/WHO, and the CDC/American Academy of Pediatrics in the USA. They then describe the pros and cons of these different approaches. They also present emerging data about asymptomatic or mildly symptomatic mothers who become severely ill after delivery. In conclusion, the authors state that global collaborative research efforts are needed to fully understand the implications of the diverse approaches to handling newborns at risk of COVID-19.</td>
<td>Post-natal transmission of SARS-CoV-2 can lead to neonatal infections of COVID-19. Different guidelines have been proposed for the care of these mothers/infants; however, global research is needed to understand the outcomes of these various approaches.</td>
<td>Shah MD, Saugstad OD. Newborns at risk of COVID-19. [published online 2020 May 6]. J Perinat Med. doi:10.1515/jpm-2020-0170</td>
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<td>Pregnancy, maternal fecal contamination, vaginal delivery, neonatal outcome, vertical transmission</td>
<td>6-May-20</td>
<td>How to Reduce the Potential Risk of Vertical Transmission of SARS-CoV-2 During Vaginal Delivery?</td>
<td>European Journal of Obstetrics &amp; Gynecology and Reproductive Biology</td>
<td>Review Article</td>
<td>In addition to intrauterine infection and breastfeeding, potential routes of vertical transmission include vaginal delivery, through neonatal contact with fluids of both the maternal vagina and rectum. Current recommendations for pregnant women with COVID-19 suggest that delivery mode should be determined primarily by obstetric indication, unless the woman’s respiratory condition demands urgent intervention. On the basis of this evidence, the authors suggest a pre-labor anorectal swab be taken from pregnant women who test positive for COVID-19 to identify newborns at risk of perinatal infection. This article also presents proposed preventive measures to reduce the potential vertical transmission during vaginal birth in women; these recommendations and their rationales should be considered as additional information, not to replace advice from international associations.</td>
<td>This article proposes preventive measures during vaginal delivery to reduce the potential risk of perinatal SARS-CoV-2 infection by targeting contamination from maternal anus and fecal material.</td>
<td>Carosso A, Cosma S, Serafini P, Benedetto C, Mahmood T. How to reduce the potential risk of vertical transmission of SARS-CoV-2 during vaginal delivery? [published online 2020 May 6]. Eur J Obstet Gynecol Reprod Biol. doi:10.1016/j.ejogrb.2020.04.065</td>
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<td>Child, liver transplant, immunosuppression, EBV co-infection, Italy</td>
<td>6-May-20</td>
<td>Child With Liver Transplant Recovers From COVID-19 Infection. A Case Report</td>
<td>Archives de Pédiatrie</td>
<td>Short Communication</td>
<td>A 55-month-old girl presented with asymptomatic Epstein-Barr Virus (EBV) primary infection five months after undergoing liver transplantation (from her father, who was EBV positive). In mid-March 2020, the child developed rhinitis shortly after her mother developed symptoms of later confirmed COVID-19. Two days later, the child developed fever, cough, and polyneuropathy; three days later, she was referred to a hospital where she was diagnosed with COVID-19 on a nasopharyngeal swab. On admission, she had polyneuropathy but no other signs of respiratory distress. She had no inflammatory syndrome and recovered from COVID-19 despite the high level of immunosuppression caused by her tacrolimus treatment to prevent transplant rejection.</td>
<td>To the authors’ knowledge, this is the first case report of COVID-19 in an immunosuppressed pediatric patient with liver transplantation and confirmed co-infection with Epstein-Barr virus (EBV).</td>
<td>Morand A, Roquelaure B, Colson P, et al. Child with liver transplant recovers from COVID-19 infection. A case report [published online 2020 May 6]. Arch Pediatr. doi:10.1016/j.arcped.2020.05.004</td>
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<td>Pregnancy, neonates, maternity care, clinical practice guidelines</td>
<td>6-May-20</td>
<td>Review of clinical practice guidelines for the care of pregnant women (and their babies) during COVID-19</td>
<td>Cochrane Pregnancy and Childbirth</td>
<td>Review</td>
<td>The authors of this review have developed a protocol to identify, collate and summarize national clinical practice guideline recommendations that address 14 key questions related to the care of pregnant women (and their newborns) during the COVID-19 pandemic. Nineteen countries with &gt;10,000 confirmed COVID-19 cases were included, and two reviewers from each country searched for country-specific clinical practice guidelines. The consensus level across countries was set at 80% (i.e. where 80% of countries with a guideline that addressed the question made the same recommendation). Key findings are organized by COVID-19 status in pregnant women.</td>
<td>This review presents consensus recommendations on maternity care from 19 countries with &gt;10,000 confirmed COVID-19 cases. Importantly, there was a lack of consensus on a variety of issues between issued guidelines.</td>
<td>Devane D, Kellei F, Finucane E, et al. on behalf of the Cochrane Pregnancy and Childbirth COVID Group. Review of clinical practice guidelines for the care of pregnant women (and their babies) during COVID-19 [published online 2020 May 6]. Cochrane.</td>
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<td>Infant, anal swab, throat swab, hospitalization, Brazil</td>
<td>6-May-20</td>
<td>An infant with a mild SARS-CoV-2 infection detected only by anal swabs: a case report</td>
<td>The Brazilian Journal of Infectious Diseases</td>
<td>Case Report</td>
<td>This case report presents an 8-month-old infant, who was hospitalized with 1-day history of non-productive cough and runny nose. Chest CT showed no abnormal findings. The patient's anal swab was positive for SARS-CoV-2 via RT-PCR on day 2 after admission and remained positive for 8 days. Throat swabs were persistently negative throughout the hospital stay. Mild and asymptomatic cases of COVID-19, especially in children, might present with RT-PCR negative nasal/pharyngeal swabs and RT-PCR positive anal swabs. These patients are potential sources of infection via fecal–oral transmission.</td>
<td>This brief case report describes a hospitalized infant SARS-CoV-2 infection, confirmed in anal swab samples, which remained positive for 8 days. Throat swab samples were negative throughout the patient's hospital stay.</td>
<td>Li J, Feng J, Liu TH, Xu FC, Song QG. An infant with a mild SARS-CoV-2 infection detected only by anal swabs: a case report [published online, 2020 May 6]. J Infect Dis. doi:10.1016/j.ijid.2020.04.009</td>
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<td>Pregnancy, postpartum respiratory distress, decompensatio n, neonates, Canada</td>
<td>6-May-20</td>
<td>Postpartum exacerbation of antenatal COVID-19 pneumonia in 3 women</td>
<td>Canadian Medical Association Journal</td>
<td>Original Article</td>
<td>In this case series, 3 women with histories of COVID-19 exposures were admitted in their third trimester for delivery. All women delivered by cesarean section, and all newborns tested negative for SARS-CoV-2 on RT-PCR. Between 28-81 hours postpartum, all women showed postpartum respiratory distress with deoxygenation and sudden clinical decompensation, associated with lymphopenia, elevated CRP, and changes in chest CT consistent with SARS-CoV-2 infection. The authors hypothesize that the develop of serious symptoms after delivery may be due to hemodynamic, immunologic and plasma volume changes that interfered with normal hormonal and diuresis changes postpartum. These changes may have predisposed to further changes in pulmonary vasculature and decompensation, particularly in immunocompromised hosts with COVID-19, who have systemic inflammatory changes.</td>
<td>Three reported cases of pregnant women with COVID-19 show that normal peripartum chest CT, in the presence of mild symptoms, does not preclude an abrupt postpartum decompensation.</td>
<td>An P, Wood BJ, Li W, Zhang M, Ye Y. Postpartum exacerbation of antenatal COVID-19 pneumonia in 3 women [published online, 2020 May 6]. CMAJ. 2020. doi:10.1503/cmaj.200553</td>
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<td>Infants, neonates, preterm delivery, pediatric intensive care, UK</td>
<td>6-May-20</td>
<td>COVID-19 in Neonates and Infants: Progression and Recovery</td>
<td>The Pediatric Infectious Diseases Journal</td>
<td>Brief Report</td>
<td>This case series reports on 8/70 (11.4%) SARS-CoV-2 positive infants (range: 5 days-12 months), who were tested between March 10 and April 17, 2020. 5/8 (63%) developed fever, 4/8 (50%) had lower respiratory tract involvement, 2/8 (25%) had neutropenia and thrombocytosis, and 4/8 infants (50%) were treated for suspected sepsis with broad-spectrum antibiotics. Only 1/8 (13%) required pediatric intensive care following premature delivery at 34 weeks' gestation; the neonate was still able to be breastfed after delivery. All patients were eventually discharged. In this case series of neonates and infants, cases of COVID-19 ranged from asymptomatic to moderately severe; all recovered quickly and were asymptomatic by discharge.</td>
<td>In this case series of neonates and infants, cases of COVID-19, ranged from asymptomatic to moderately severe; all recovered quickly and were asymptomatic by discharge.</td>
<td>Ng KF, Bandi S, Bird PW, Wei-Tze Tang J. COVID-19 in Neonates and Infants: Progression and Recovery [published online, 2020 May 6]. Pediatr Infect Dis J. 2020. doi:10.1097/INF.0000000000002738</td>
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<td>Children, risk factors, inflammatory biomarkers, lung segment involvement, China</td>
<td>6-May-20</td>
<td>The Risk of Children Hospitalized With Severe COVID-19 in Wuhan</td>
<td>The Pediatric Infectious Diseases Journal</td>
<td>Original Studies</td>
<td>This retrospective case-control study of children with SARS-CoV-2 infection, at Wuhan Children’s Hospital, analyzed risk factors associated with the development and progression of COVID-19. Of 260 children admitted by March 14, 2020, 8 children were diagnosed with severe COVID-19 pneumonia and included in this study. Thirty-five children with non-severe COVID-19 infection, matched for age, sex and date of admission, were randomly selected from hospital admissions. In severe cases, the most common symptoms were dyspnea (87.5%), fever (62.5%) and cough (62.5%). White blood cell count was significantly higher in severe children than non-severe children. Levels of inflammatory bio-makers, such as CRP, IL-6, IL-10 and D-dimer, were elevated in severe children compared with non-severe children on admission. In addition, levels of total bilirubin and uric acid were clearly elevated in severe children compared with non-severe children on admission. All severe children displayed lesions on chest CT; more lung of inflammatory biomarkers, such as CRP, IL-6, IL-10 and D-dimer, were elevated in severe children compared with non-severe children on admission. In this case-control study comparing severe vs. non-severe cases of COVID-19 in children, the involvement of ≥3 lung segments was associated with greater risk of severe disease. Elevated inflammatory biomarkers, like IL-6, high total bilirubin, and D-dimer, were also identified as early risk factors.</td>
<td>In this case-control study comparing severe vs. non-severe cases of COVID-19 in children, the involvement of ≥3 lung segments was associated with greater risk of severe disease. Elevated inflammatory biomarkers, like IL-6, high total bilirubin, and D-dimer, were also identified as early risk factors.</td>
<td>Wang Y, Zhu F, Wang C, et al. The Risk of Children Hospitalized With Severe COVID-19 in Wuhan [published online, 2020 May 6]. Pediatr Infect Dis J. 2020. doi:10.1097/INF.0000000000002739</td>
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### Key Terms

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<tr>
<td>Child, hematuria, multi-organ involvement, respiratory virus panel, Brazil</td>
<td>6-May-20</td>
<td>Hematuria Associated With SARS-CoV-2 Infection in a Child</td>
<td>The Pediatric Infectious Diseases Journal</td>
<td>Letters to the Editor</td>
<td>This case report describes a 10-year-old female, previously healthy, who was admitted to the emergency department with a one-day history of fever, mild respiratory symptoms, and hematuria. Urinalysis showed the presence of normally shaped red blood cells and renal ultrasound showed no abnormalities. The patient's nasopharyngeal swab specimen was positive for SARS-CoV-2 RNA and negative for all other respiratory viruses. The urine sample was negative for SARS-CoV-2 RNA. Nasopharyngeal RT-PCR tests remained positive on day 7 but negative on day 21 after onset of symptoms. Hematuria and renal injury have been commonly described in viral respiratory infections, like influenza and adenovirus, and have been observed in adults hospitalized with COVID-19. Pediatricians should be aware of the possibility of similar presentations of multi organ involvement in children.</td>
<td>A case of mild COVID-19 in a 10-year-old child presented with mild respiratory symptoms and hematuria, suggesting the possibility of multi-organ involvement.</td>
<td>Almeida FJ, Olmos RD, Oliveira DML, et al. Hematuria Associated With SARS-CoV-2 Infection in a Child [published online, 2020 May 6]. Pediatr Infect Dis J. 2020. doi:10.1097/INF.0000000000002737</td>
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<tr>
<td>Children, co-infection, respiratory pathogens, China</td>
<td>6-May-20</td>
<td>Co-infection and Other Clinical Characteristics of COVID-19 in Children</td>
<td>Pediatrics</td>
<td>Peer-Reviewed Article (pre-publication release)</td>
<td>A total of 74 pediatric patients with RT-PCR confirmed COVID-19 were included in this study. None of the children had comorbidities. Of the 68 cases whose epidemiological data were complete, 65 (95.6%) cases were household contacts of adults. Cough (32.4%) and fever (27.0%) were the predominant symptoms of 44 (59.5%) symptomatic patients at illness onset. Abnormalities in leukocyte count were found in 23 (31.1%) children and 10 (13.5%) children presented with abnormal lymphocyte count. Of the 34 (46.0%) patients who had nucleic acid testing results for common respiratory pathogens, 19 (51.4%) showed co-infection with other pathogens other than SARS-CoV-2. Ten (13.5%) children had RT-PCR analysis for fecal specimens and 8 of them showed prolonged existence of SARS-CoV-2 RNA.</td>
<td>Pediatric COVID-19 patients presented with symptoms distinct from adults and were susceptible to co-infection with other respiratory pathogens. Persistent fecal shedding of viral RNA was found after respiratory specimens turned negative.</td>
<td>Wu Q, Xing Y, Shi L, et al. Co-infection and Other Clinical Characteristics of COVID-19 in Children [published online, 2020 May 6]. Pediatrics. 2020. doi:10.1542/peds.2020-0961</td>
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<tr>
<td>Children, pediatric emergency department attendance, UK</td>
<td>6-May-20</td>
<td>Where Have All the Children Gone? Decreases in Paediatric Emergency Department Attendances at the Start of the COVID-19 Pandemic of 2020</td>
<td>Archives of Disease in Childhood</td>
<td>Letter</td>
<td>Although children and young people [CYP, defined here as &lt;16 years] can become infected with SARS-CoV-2, it appears that they are mainly asymptomatic or experience mild symptoms, resulting in a much smaller number of COVID-19 related emergency department (ED) attendances. This letter reports findings from a comparison of ED attendance data for CYP since the first reported cases of COVID-19 with the same weeks in 2019. There was a 5.6% decrease between February 2019 and February 2020, and a 30.4% decrease between March 2019 and March 2020 at a large district general hospital in Greater Manchester, UK. There was a 0.6% decrease between February 2019 and February 2020, and a 33.8% decrease between March 2019 and March 2020 at a regional children's hospital in the same area. The reasons why children were not attending likely reflect changing behaviors and concerns of their caregivers during the pandemic.</td>
<td>Based on Emergency Department (ED) attendance data from two hospitals in the UK, findings show that children are presenting to the ED at a lower rate during the pandemic (February and March 2020) compared to the same months in 2019.</td>
<td>Isba R, Edge R, Jenner R, Broughton E, Francis N, Butler J. Where have all the children gone? Decreases in paediatric emergency department attendances at the start of the COVID-19 pandemic of 2020 [published online, 2020 May 6]. Arch Dis Child. 2020. doi:10.1136/archdischild-2020-319385</td>
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<td>Children, immune preparedness, innate immunity, natural antibodies, memory B cells</td>
<td>6-May-20</td>
<td>The immune system of children: the key to understanding SARS-CoV-2 susceptibility?</td>
<td>The Lancet Child &amp; Adolescent Health</td>
<td>Comment</td>
<td>To date, there is no evidence to support a lower degree of expression or function of the SARS-CoV-2 receptor (namely ACE2) in children, who experience milder COVID-19 disease than adults. During the first years of life, frequent infections build the pool of memory T and B cells that will prevent reinfection by commonly encountered pathogens. Pediatric immune preparedness, fit to react to novel pathogens including SARS-CoV-2, might be based on the abundance of natural antibodies in children. These antibodies (mostly IgM) are generated independently of previous antigen encounters, have broad reactivity, and contain infection during the 2 weeks necessary for production of high-affinity antibodies and memory B cells. Preliminary results from a prospective study designed to test these hypotheses suggest an early polyclonal B-cell response with production of substantial numbers of plasmablasts (mostly IgM) in children. This response is not observed in adults with severe disease.</td>
<td>The immune preparedness of children, who are better equipped to respond to frequent, novel infection through innate immunity (e.g. natural IgM antibodies), may explain differences in COVID-19 susceptibility and disease course between children and adults.</td>
<td>Carsetti R, Quintarelli C, Quint L, Mortari EP, Zumla A, Ippolito G et al. The immune system of children: the key to understanding SARS-CoV-2 susceptibility? [published online 2020 May 6]. Lancet Child &amp; Adolesc Health. doi:10.1016/S2352-4642(20)30135-8</td>
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<td>Neonatal nutrition, breastfeeding, human milk banking</td>
<td>6-May-20</td>
<td>Maintaining safety and service provision in human milk banking: a call to action in response to the COVID-19 pandemic</td>
<td>The Lancet Child &amp; Adolescent Health</td>
<td>Comment</td>
<td>A Virtual Communication Network of milk bank leaders formed on March 17, 2020, and now has more than 80 members from 34 countries. Data collated from regional and country leads show that more than 800,000 infants are estimated to receive donor milk worldwide annually. The group actively discusses COVID-19-specific challenges and has developed mitigation strategies to ensure donor milk safety and service continuation, which will shortly be made available as a publication. Unlike HIV, where transmission via breastfeeding was a source of infection, there is no evidence to support SARS-CoV-2 transmission from human milk, and the virus is inactivated by heat treatment. In line with WHO recommendations, the promotion of breastfeeding and a human milk diet, using donor milk bank resources, must be prioritized as an essential component of early newborn care.</td>
<td>A Virtual Communication Network of international milk bank leaders considers issues related to the provision of donor milk services during the COVID-19 pandemic and provides guidance around breastfeeding.</td>
<td>Shenker N, on behalf of the Virtual Collaborative Network of Human Milk Banks and Associations. Maintaining safety and service provision in human milk banking: a call to action in response to the COVID-19 pandemic [published online 2020 May 6]. Lancet Child &amp; Adolesc Health. doi:10.1016/S2352-4642(20)30134-6</td>
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<td>Fetal surgery, perinatal management, vertical transmission</td>
<td>6-May-20</td>
<td>Fetal Diagnosis and Therapy During the COVID-19 Pandemic: Guidance on Behalf of the International Fetal Medicine and Surgery Society</td>
<td>Fetal Diagnosis and Therapy</td>
<td>Original Paper</td>
<td>This review discusses potential modifications to obstetric management and fetal procedures in both SARS-CoV-2 negative and positive patients with fetal anomalies or disorders. Most fetal therapies are time sensitive and cannot be delayed. If personnel and resources are available, procedures of proven benefit should continue to be offered, acknowledging any fetal and maternal risks, including those to health care workers. There is, to date, minimal, unconfirmed evidence of spontaneous vertical transmission, though it may theoretically be increased with some procedures. It is important to know a mother's preoperative SARS-CoV-2 status to avoid or defer certain procedures while she is contagious. Some fetal conditions may alternatively be managed neonatally. Counseling regarding fetal interventions that carry the possibility of additional intra- or postoperative morbidity must be provided in the context of local resource availability.</td>
<td>Fetal interventions of proven benefit should continue to be offered, taking into account the added maternal and fetal risks presented by positive SARS-CoV-2 status.</td>
<td>Deprest J, Choolani M, Chervenak F, et al. Fetal Diagnosis and Therapy during the COVID-19 Pandemic: Guidance on Behalf of the International Fetal Medicine and Surgery Society [published online, 2020 May 6]. Fetal Diagn Ther. 2020;1-10. doi:10.1159/000508254</td>
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<td>Children, clinical characteristics, epidemiology, chest CT lesions,</td>
<td>6-May-20</td>
<td>A Single-Center, Retrospective Study of COVID-19 Features in Children: A Descriptive Investigation</td>
<td>BMC Medicine</td>
<td>Research Article</td>
<td>Among 50 children with positive SARS-CoV-2 RT-PCR tests, admitted to Wuhan Children's Hospital, five had negative results initially but showed positive results in subsequent tests. Eight (16%) patients had lymphopenia, seven (14%) had thrombocytopenia, four (8%) had lymphocytosis, two (4%) had thrombocytosis, ten (20%) had elevated C-reactive protein, four (8%) had hemoglobin above, and six (12%) had below standard reference values. Seven (14%) of the 50 had no radiologic evidence of disease on chest CT. For this retrospective study concludes that CT is a powerful tool to detect and characterize COVID-19 pneumonia but has little utility in evaluating clinical</td>
<td>This retrospective study concludes that CT is a powerful tool to detect and characterize COVID-19 pneumonia but has little utility in evaluating clinical</td>
<td>Ma H, Hu J, Tian J, et al. A single-center, retrospective study of COVID-19 features in children: a descriptive investigation. BMC Med. 2020;18(1):123. Published 2020 May 6.</td>
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COVID-19, Maternal and Child Health, Nutrition – Literature Repository
May 2020

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<th>Summary &amp; Key Points</th>
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<td>discharge criteria, China</td>
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<td>the 43 patients who had abnormal CT findings, in addition to previously reported patterns of ground-glass opacity (67%), local patchy shadowing (37%), local bilateral patchy shadowing (21%), and lesion location of lower lobes (65%), other CT features showed an overwhelming number of pediatric patients with lesions in the subpleural area (95%), and 22 of the 28 lower lobe lesions were in the posterior segment (78%). Lesions were not completely absorbed in 67% of the 15 patients who received a chest CT at discharge, and 26% of these patients had CT lesions that were either unchanged or increased. All 15 patients had normal body temperatures, no clinical symptoms, and consecutive negative PCR tests at discharge.</td>
<td>recovery for children, prior to discharge.</td>
<td>doi:10.1186/s12916-020-01596-9</td>
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<td>Children, viral shedding, Kaplan-Meier analysis, China</td>
<td>5-May-20</td>
<td>Symptomatic Infection Is Associated With Prolonged Duration of Viral Shedding in Mild Coronavirus Disease 2019: A Retrospective Study of 110 Children in Wuhan</td>
<td>The Pediatric Infectious Diseases Journal</td>
<td>Original Studies (peer-reviewed)</td>
<td>Data from 110 children (median age: 6 years) with COVID-19 at Wuhan Children's Hospital, from January 30 to March 10, 2020, were analyzed retrospectively. The median period of viral SARS-CoV-2 RNA shedding, assessed via RT-PCR on throat or nasopharyngeal swab, was 15 days (IQR: 11-20 days) as measured from illness onset to discharge. This period was shorter in asymptomatic patients (26.4%) compared with symptomatic patients (73.6%) (11 vs. 17 days). Multivariable regression analysis showed increased odds of symptomatic infection was associated with age &lt;6 years (OR 8.9; 95% CI 2.6-31.4; p=0.001), hypersensitive C-reactive protein &gt;3.0 mg/L (OR 8.8; 95% CI 1.1-21.8; p=0.037) and presenting pneumonia in chest radiologic findings (OR 8.5; 95% CI 2.7-26.6; p&lt;0.001). Kaplan-Meier analysis revealed that symptomatic infection (p&lt;0.001), fever (p=0.006), pneumonia (p=0.003) and lymphocyte counts &lt;2.0×10^9/L (p=0.008) were associated with prolonged duration of viral RNA shedding in children with COVID-19.</td>
<td>In this study, prolonged duration of viral RNA shedding in children with COVID-19 was associated with symptomatic infection, fever, pneumonia and lymphocyte count of 2.0x10^9/L.</td>
<td>Lu Y, Li Y, Deng W, et al. Symptomatic Infection is Associated with Prolonged Duration of Viral Shedding in Mild Coronavirus Disease 2019: A Retrospective Study of 110 Children in Wuhan [published online, 2020 May 5]. Pediatr Infect Dis J. 2020. doi:10.1097/INF.0000000000002729</td>
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<td>Children, super spreaders, transmission, community testing, family clusters, school closures</td>
<td>5-May-20</td>
<td>Children Are Not COVID-19 Super Spreaders: Time to Go Back to School</td>
<td>Archives of Disease in Childhood</td>
<td>Viewpoint</td>
<td>Early contact tracing data from Shenzhen, China appeared to confirm a role for children in COVID-19 transmission; however, in some regions where widespread community testing has been implemented (e.g. South Korea, Iceland), children are significantly underrepresented in the number of positive cases among the general populations. Thus, evidence is emerging that children could be less likely to become infected than adults. Alternatively, children could have a more transient upper respiratory infection with minimal viral shedding; data on family clusters have shown that children are not likely to be the index case in households. Currently, children do not appear to be super spreaders but until there is high-quality sero-surveillance data, these questions cannot be answered with certainty.</td>
<td>Based on studies of widespread community testing and family clusters, the authors argue that children do not appear to play a significant role in COVID-19 transmission.</td>
<td>Munro APS, Faust SN. Children are not COVID-19 super spreaders: time to go back to school [published online, 2020 May 5]. Arch Dis Child. 2020. doi:10.1136/archdischild-2020-319474</td>
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<tr>
<td>Children, renin-angiotensin-aldosterone system, cardiovascular disease, chronic kidney disease</td>
<td>5-May-20</td>
<td>ACE2, COVID-19, and ACE Inhibitor and ARB Use During the Pandemic: The Pediatric Perspective</td>
<td>Hypertension</td>
<td>Original Article</td>
<td>This review highlights the relationship of COVID-19 and the use of ACE inhibitors and angiotensin II receptor blockers (ARB) to treat chronic kidney and cardiovascular disease, from a pediatric perspective. A summary of the renin-angiotensin-aldosterone system and review of the literature pertaining to the ACE2/Angiotensin-(1-7) pathway in children are provided. Currently, there is no evidence that children who are taking ACE inhibitors or ARBs are at increased risk of SARS-CoV-2 infection or severe disease. Given the proven benefits of these medications, especially for youth with chronic conditions, many scientific societies affirm the continued use of these agents.</td>
<td>ACE inhibitors and angiotensin II receptor blockers have not been conclusively shown to increase risk of SARS-CoV-2 infection and should continue to be used in children with chronic conditions.</td>
<td>South AM, Brady TM, Flynn JT. ACE2, COVID-19, and ACE Inhibitor and ARB Use during the Pandemic: The Pediatric Perspective [published online, 2020 May 5]. Hypertension. 2020. doi:10.1161/HYPERTENSIONAHA.120.15291</td>
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<td>Pregnancy, questionnaire,</td>
<td>5-May-20</td>
<td>Effectiveness of a COVID-19 Screening</td>
<td>International Journal of Brief Communication</td>
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<td>Sutton et al. reported on universal testing with nasopharyngeal swabs to detect severe SARS-CoV-2 infection in 215 women admitted for delivery at the Presbyterian Allen Hospital in New York, USA. However, this approach is</td>
<td>A COVID-19 maternity hub in Milan, Italy employed a</td>
<td>Tassini B, Lunghi G, Frattarulo MP, Ruggiero M, Somigliana E, Ferrazzi E.</td>
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<td>systematic screening, Italy</td>
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<td>Questionnaire for Pregnant Women at Admission to an Obstetric Unit in Milan</td>
<td>Gynaecology &amp; Obstetrics</td>
<td>Case Series</td>
<td>only feasible in major hospitals in high-resource countries with efficient lab facilities in-house. An alternative approach is considered in this report from a COVID-19 maternity hub in Milan, Italy. This facility opted for systematic screening for SARS-CoV-2 using a specific questionnaire, administered at obstetrics admission; suspected cases underwent nasopharyngeal swab testing and were managed as suspected COVID-19 cases until results were available.</td>
<td>questionnaire to systematically screen for suspected cases of SARS-CoV-2 among pregnant women at obstetrics admission. This is an inexpensive and possibly effective tool in settings with lower incidence.</td>
<td>Effectiveness of a COVID-19 screening questionnaire for pregnant women at admission to an obstetric unit in Milan [published online, 2020 May 5]. Int J Gynaecol Obstet. 2020. doi:10.1002/ijgo.13191</td>
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<td>Pregnancy, breast milk samples, vaginal secretions, China</td>
<td>5-May-20</td>
<td>Coronavirus Disease 2019 Among Pregnant Chinese Women: Case Series Data on the Safety of Vaginal Birth and Breastfeeding</td>
<td>BJOG</td>
<td>Case Series</td>
<td>In this single center cohort study, 13 pregnant women with SARS-CoV-2 infection, diagnosed between January 31 and March 9, 2020 at Renmin Hospital, Wuhan, China, were included. Of the 13 women, 5 were in their first trimester, 3 in their second trimester, and 5 in their third trimester. Of the 5 women during their third trimester who gave birth, all delivered live newborns. Among these 5 deliveries, the primary adverse perinatal outcomes included premature delivery (n = 2) and neonatal pneumonia (n = 2). One of 9 maternal stool samples was positive for SARS-CoV-2 on RT-PCR; all 13 vaginal secretion samples in addition to 5 neonatal throat swabs and 4 neonatal anal swabs were negative. However, 1 of 3 samples of breast milk was positive by viral nucleic acid testing.</td>
<td>Negative SARS-CoV-2 test results for vaginal secretion specimens, from pregnant women with COVID-19, suggest that vaginal delivery may be a safe option. However, a positive breast milk sample in this study warrants further study of the risk for viral contamination.</td>
<td>Wu Y, Liu C, Dong L, et al. Coronavirus disease 2019 among pregnant Chinese women: Case series data on the safety of vaginal birth and breastfeeding [published online, 2020 May 5]. BJOG. 2020. doi:10.1111/1471-0528.16276</td>
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<td>Pregnancy, neonatal death, maternal hypoxia, ARDS, inflammatory storm, fetal myocardium, China</td>
<td>5-May-20</td>
<td>Critically Ill Pregnant Patient With COVID-19 and Neonatal Death Within Two Hours of Birth</td>
<td>International Journal of Gynaecology &amp; Obstetrics</td>
<td>Brief Communication</td>
<td>Most pregnant women with COVID-19 appear to experience a milder clinical course. In contrast, the present report describes a critical case of COVID-19 in a 31-year-old pregnant woman, admitted to Xiaolan People’s Hospital of Zhongshan at 35+2 weeks of pregnancy with no known comorbidity or history of chronic illness. Onset of symptoms in the patient began with a sore throat and dry cough for 4 days, followed by fever and dyspnea for half a day. Within 12 hours of hospitalization, the patient experienced rapid aggravation of disease, progressing to acute respiratory distress syndrome and septic shock. An emergency cesarean delivery was performed at the bedside, but the neonate died within two hours of birth. Maternal hypoxia may have caused sudden changes in the fetal intrauterine environment, while the inflammatory storm caused by maternal infection may have triggered a systemic immune response that attacked fetal organs. Biochemical examination of umbilical cord blood at birth revealed a marked increase in myocardial enzymes, suggesting severe damage to the fetal myocardium.</td>
<td>This case report describes neonatal death following emergency cesarean delivery in a pregnant woman with severe COVID-19, which progressed to ARDS and septic shock. Causes of death may relate to conditions of maternal hypoxia and inflammatory storm, leading to damage of fetal organs.</td>
<td>Li J, Wang Y, Zeng Y, et al. Critically ill pregnant patient with COVID-19 and neonatal death within two hours of birth [published online, 2020 May 5]. Int J Gynaecol Obstet. 2020. doi:10.1002/ijgo.13189</td>
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<td>Children, IL-6, inflammatory marker, cytokine storm</td>
<td>4-May-20</td>
<td>Interleukin-6 Levels in Children Developing SARS-CoV-2 Infection</td>
<td>Pediatrics and Neonatology</td>
<td>Perspectives</td>
<td>Recently, the authors demonstrated that COVID-19 severity in adult patients was strongly associated with higher interleukin-6 (IL-6) levels. In this article, data from 6 studies (total sample size: n=117 pediatric patients; ranging from newborn to adolescence) were synthesized. In contrast to results in adults, the pediatric COVID-19 cases had IL-6 levels within normal range (mean 86.3%; range 67-100%), and all of the current studies observed patients having mild symptoms. This finding reinforces previous notions that the cytokine storm, indicated by excessive circulating IL-6, is less likely to occur in children. As a marker of COVID-19 severity, IL-6 may be relatively more consistent compared to other inflammatory markers, such as C-reactive protein.</td>
<td>Based on review of a small number of studies, pediatric cases had IL-6 levels within normal range, suggesting an absence of cytokine storm compared to adults.</td>
<td>Soraya GV, Ulhaq ZS. Interleukin-6 levels in children developing SARS-CoV-2 infection [published online 2020 May 4]. Pediatr Neonatol. doi:10.1016/j.pedneo.2020.04.007</td>
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<td>Female reproductive system, pregnancy, renin-angiotensin system</td>
<td>4-May-20</td>
<td>Potential Influence of COVID-19/ACE2 on the Female Reproductive System</td>
<td>Molecular Human Reproduction</td>
<td>Review</td>
<td>The SARS-CoV-2 virus invades the target cell by binding to angiotensin-converting enzyme (ACE) 2 and modulates the expression of ACE2 in host cells. ACE2, a pivotal component of the renin-angiotensin system, exerts its physiological functions by modulating the levels of angiotensin II (Ang II) and Ang-(1-7). In this article, authors review existing literature on the distribution and function of ACE2 in the female reproductive system, hoping to clarify the potential harm of SARS-CoV-2 to female fertility. Available evidence suggests that ACE2 is widely expressed in the ovary, uterus, vagina and placenta. Therefore, the possibility of mother-to-child and sexual transmission exists. Ang II, ACE2 and Ang-(1-7) regulate follicle development and ovulation, modulate luteal angiogenesis and degeneration, and also influence the regular changes in endometrial tissue and embryo development. Taking these functions into account, by modulating the expression of ACE2 receptors, SARS-CoV-2 may disturb female reproductive functions.</td>
<td>Wide expression of the ACE-2 receptor in the ovary, uterus, vagina, and placenta suggest the possibility of mother-to-child and sexual transmission of SARS-CoV-2. Binding of SARS-CoV-2 virus to the ACE-2 receptor may disrupt female reproductive functions regulated by the renin-angiotensin system.</td>
<td>Jing Y, Run-Qian L, Hao-Ran W, et al. Potential influence of COVID-19/ACE2 on the female reproductive system [published online, 2020 May 4]. Mol Hum Reprod. 2020. doi:10.1093/molehr/gaa030</td>
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<td>Neonatal infection, hypoxemia, perioral cyanosis, poor sucking, maternal expressed milk, Italy</td>
<td>4-May-20</td>
<td>Early Neonatal SARS-CoV-2 Infection Manifesting With Hypoxemia Requiring Respiratory Support</td>
<td>Pediatrics</td>
<td>Case Report</td>
<td>On the second day after uncomplicated vaginal delivery of a male neonate, the mother developed fever without respiratory symptoms, and her nasopharyngeal swab was positive for SARS-CoV-2. A nasopharyngeal swab obtained on the same day was also positive for the neonate, who was isolated from his mother. After 48 hours of isolation, on day 5 of life, the neonate developed perioral cyanosis and poor sucking without signs of respiratory distress. Arterial blood gas analysis demonstrated moderate hypoxia. The neonate was admitted to the NICU and placed on 30% inspired oxygen via high-flow nasal cannula, and his condition improved. He was fed maternal expressed milk by nasogastric tube for 48 hours, after which he was able to be fully fed orally. On days 15 and 21 of life, his qualitative PCR for COVID-19 remained positive.</td>
<td>A case of COVID-19 in a 3-day-old neonate manifested with silent hypoxemia. The neonate was fed expressed maternal milk via nasogastric tube until he was able to be fed orally. The nasopharyngeal swab remained positive for more than two weeks, unlike previous reports showing rapid virologic clearance.</td>
<td>Sinelli MT, Paterlini G, Citterio M, Di Marco A, Fedeli T, Ventura ML. Early Neonatal SARS-CoV-2 Infection Manifesting With Hypoxemia Requiring Respiratory Support [published online, 2020 May 4]. Pediatrics. 2020. doi:10.1542/peds.2020-1121</td>
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<td>Obesity, young age, ICU admission, USA</td>
<td>4-May-20</td>
<td>Obesity could shift severe COVID-19 disease to younger ages</td>
<td>Lancet</td>
<td>Correspondence</td>
<td>Obesity is an underappreciated risk factor for COVID-19 and is particularly relevant in the USA, where the prevalence of obesity is around 40%, versus a prevalence of 6.2% in China, 20% in Italy, and 24% in Spain. In a dataset of 265 patients (58% male) with COVID-19 admitted to the ICU at various university hospitals at 6 sites across the country, a significant inverse correlation between age and BMI was observed. In other words, younger individuals admitted to the ICU were more likely to be obese. The median BMI was 29.3kg/m², with 25% exceeding a BMI of 34.7kg/m². Obesity can restrict ventilation by impeding diaphragm excursion, impairs immune responses to viral infection, is pro-inflammatory, and induces diabetes and oxidant stress to adversely affect cardiovascular function. The authors conclude that in populations with a high prevalence of obesity, COVID-19 will affect younger populations more than previously reported.</td>
<td>Younger patients with COVID-19, admitted to ICUs across various university hospitals in the USA, were more likely to be obese than older patients. Obesity warrants further attention as a pro-inflammatory risk factor for COVID-19, especially in younger individuals.</td>
<td>Kass DA, Duggal P, Cingolani O. Obesity could shift severe COVID-19 disease to younger ages [published online 2020 May 4]. Lancet. doi:10.1016/S0140-6736(20)31024-2</td>
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<td>Pregnancy, antenatal, intrapartum, postpartum care, UK</td>
<td>4-May-20</td>
<td>Covid-19 and pregnancy</td>
<td>BMJ</td>
<td>Practice</td>
<td>The UK Royal College of Obstetricians and Gynaecologists (RCOG) recently published a set of guidelines related to COVID-19 in pregnancy, on April 17, 2020. This summary reviews the development of the guideline and key recommendations. The guideline itself summarizes the available evidence on the effects of COVID-19 on pregnant women and fetuses. It provides recommendations on the care of pregnant women with suspected or confirmed COVID-19 in the antepartum, intrapartum, and postnatal stages.</td>
<td>This brief summary reviews guidelines recently published by the UK Royal College of Obstetricians and Gynaecologists on caring for pregnant women with COVID-19.</td>
<td>Covid-19 and pregnancy. BMJ. 2020;369:m1672. Published 2020 May 4. doi:10.1136/bmj.m1672</td>
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<td>Pediatrics, ethical issues, ventilator allocation</td>
<td>4-May-20</td>
<td>Pediatric Ethical Issues During the COVID-19 Pandemic Are Not Just About Ventilator Triage</td>
<td>Acta Paediatrica</td>
<td>View</td>
<td>Administrators and providers worry about an overwhelming shortage in critical life-saving ventilators for adults during the COVID-19 pandemic. However, algorithms for ventilator allocation do not easily translate to pediatric medicine nor does ventilator allocation represent an urgent crisis for pediatric medicine. In this report, authors highlight unrecognized pediatric ethical concerns: other triage decisions for scarce resources (e.g. redeployment of skilled pediatric personnel to adult medicine), the negative psychosocial effects of the pandemic on children, including food insecurity, the moral and emotional toll on clinicians, and system inadequacies.</td>
<td>Attention has focused on triage decisions surrounding ventilator shortages for critically ill adult patients. In contrast, this report highlights ethical concerns specific to children during the COVID-19 pandemic.</td>
<td>Howard MF, Moore GP, Lantos J, Janvier A. Pediatric ethical issues during the COVID-19 pandemic are not just about ventilator triage [published online, 2020 May 4]. Acta Paediatr. 2020. doi:10.1111/apa.15334</td>
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<td>Pediatric physicians, survey, Australia, New Zealand</td>
<td>4-May-20</td>
<td>COVID-19 and Paediatric Health Services: A Survey of Paediatric Physicians in Australia and New Zealand</td>
<td>Journal of Paediatrics and Child Health</td>
<td>Original Article</td>
<td>The aim of this study was to assess attitudes, readiness and confidence in the early stages of the COVID-19 pandemic through an online survey of pediatric physicians and sub-specialists across Australia and New Zealand, between March 17 and 24, 2020. Of 542 respondents (an estimated 11% of the pediatric physician workforce in Australia and New Zealand), a minority (36.6%) agreed that their national response had been well coordinated; the majority (92.7%) agreed that senior-level hospital administrators were taking the situation seriously. Most reported a good understanding of the natural history of COVID-19 in children, and knowledge of where to find local information. A large proportion of physicians (86.1%) were worried about becoming infected through their work; few (5.8%) reported that they would not come to work to avoid infection. Closure of school and childcare would reduce the ability to continue work at current capacity for 23.6% of respondents.</td>
<td>In this survey of pediatric physicians in Australia and New Zealand, most felt informed and were willing to work despite concerns about exposure at work.</td>
<td>Foley DA, Kirk M, Jepp C, et al. COVID-19 and paediatric health services: A survey of paediatric physicians in Australia and New Zealand [published online, 2020 May 4]. J Paediatr Child Health. 2020. doi:10.1111/jpc.14903</td>
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<td>Radiology, lung ultrasound, diagnosis, children, Italy</td>
<td>3-May-20</td>
<td>Lung Ultrasound in Children with COVID-19: Preliminary Findings</td>
<td>Ultrasound in Medicine &amp; Biology</td>
<td>Clinical Note</td>
<td>Recent evidence indicates the usefulness of lung ultrasound (LUS) in detecting COVID-19 pneumonia in adults; however, no data are available on the use of LUS in children with COVID-19 pneumonia. In this report, the authors describe the radiologic features on LUS of ten children with COVID-19 admitted to two tertiary-level pediatric hospitals in Rome, Italy. LUS revealed signs of lung involvement including findings of vertical artifacts (70%), pleural irregularities (60%), areas of white lung (10%), and subpleural consolidations (10%). In the authors’ experience, routine use of LUS in the evaluation of children with suspected or confirmed COVID-19 was useful in diagnosing and monitoring pediatric COVID-19 pneumonia, reducing unnecessary radiation/sedation, and decreasing exposure of healthcare workers to SARS-CoV-2.</td>
<td>The authors found that lung ultrasound (LUS) was able to detect COVID-19 pneumonia in ten children in Italy. Physical examination of the patient and bedside LUS can be performed by the same pediatrician, decreasing exposure of healthcare personnel to the virus.</td>
<td>Musolin AM, Supino MC, Buononsenso D, et al. Lung Ultrasound in Children with COVID-19: Preliminary Findings. [published online, 2020 May 3]. Ultrasound Med Biol. doi:10.1016/j.ultrasmedbio.2020.04.026</td>
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<td>Vertical transmission, congenital vs. perinatal transmission, placenta, breast milk samples, maternal antibodies</td>
<td>3-May-20</td>
<td>Evidence for and Against Vertical Transmission for SARS-CoV-2 (COVID-19)</td>
<td>American Journal of Obstetrics and Gynecology</td>
<td>Review (journal pre-proof)</td>
<td>Twelve articles, published between February 10 and April 4, 2020, reporting on 68 cases of maternal infection in the third trimester of pregnancy and deliveries of 71 neonates were identified. In these studies, SARS-CoV-2 viral nucleic acid was recovered by RT-PCR from nasal/throat swabs, sputum and feces of symptomatic patients, including neonates, but not from maternal vaginal swabs, amniotic fluid, placenta, cord blood, neonatal blood or breast milk samples. Understanding perinatal exposure, influenced by mode of delivery (e.g. exposure to maternal feces during vaginal delivery) and time interval from delivery to the diagnosis of neonatal infection (e.g. exposure to maternal respiratory secretions after birth), is crucial in differentiating congenital from perinatal infection. The low presence of viremia (observed in only 1% of symptomatic adults) decreases the likelihood of placental infection. In addition, the interpretation of IgM and IgG antibodies levels in cord and neonatal blood, in the context of serological evidence for vertical transmission, is also discussed in this review.</td>
<td>This review discusses published literature to date that support or refute the possibility of vertical transmission, both congenital and perinatal, of SARS-CoV-2 infection.</td>
<td>Lamouroux A, Attie-Bitach T, Martinovic J, Leruez-Ville M, Ville Y. Evidence for and against vertical transmission for SARS-CoV-2 (COVID-19) [published online, 2020 May 3]. Am J Obstet Gynecol. 2020. doi:10.1016/j.ajog.2020.04.039</td>
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<td>Children, athletes, alveolar ventilation, immunological model</td>
<td>2-May-20</td>
<td>The First, Holistic Immunological Model of COVID-19: Implications for Prevention, Diagnosis, and</td>
<td>Pediatric Allergy and Immunology</td>
<td>Review Article</td>
<td>In this proposed, immunological model of COVID-19, authors argue that the confrontation between SARS-CoV-2 and innate immunity is crucial in determining outcomes. Natural antibodies and other components of innate immunity are the first line of defense and must block the virus from spreading past the upper airways in the first 10-12 days from infection (5-7 days from disease onset), i.e. in the time required to prepare an efficient</td>
<td>Authors describe key features of innate immunity (e.g. Mannose Binding Lectin, natural IgM antibodies), which form</td>
<td>Matricardi PM, Dal Negro RW, Nisini R. The first, holistic immunological model of COVID-19: implications for prevention, diagnosis, and public health</td>
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<td>Neonates, postnatal infection, NICU, respiratory support modalities</td>
<td>2-May-20</td>
<td>COVID-19 and Neonatal Respiratory Care: Current Evidence and Practical Approach</td>
<td>American Journal of Perinatology</td>
<td>Review Article</td>
<td>Authors comprehensively review current evidence regarding COVID-19 perinatal transmission, respiratory outcomes of neonates born to mothers with COVID-19 and infants with documented SARS-CoV-2 infection, and the evidence for using different respiratory support modalities and aerosol-generating procedures in this specific population. The results demonstrated that to date, neonatal COVID-19 infection is uncommon, generally acquired postnatally, and associated with favorable respiratory outcomes. The reason why infants display a milder spectrum of disease remains unclear. Nonetheless, the risk of severe or critical illness in young patients exists. Currently, the recommended respiratory approach for infants with suspected or confirmed infection is not evidence based but should include all routinely used types of support, with the addition of viral filters, proper personal protective equipment, and separation of infants with suspected or confirmed COVID-19 from their mothers and placement in isolation rooms, ideally with negative pressure.</td>
<td>This report outlines current evidence on neonatal COVID-19, including recommended approaches for respiratory support for neonates with suspected or confirmed infection.</td>
<td>Shalish W, Lakshminrusimha S, Manzoni P, Keszler M, Sant'Anna GM. COVID-19 and Neonatal Respiratory Care: Current Evidence and Practical Approach [published online, 2020 May 2]. Am J Perinatol. 2020. doi:10.1055/s-0040-1710522</td>
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<td>Neonatal, late onset infection, pregnancy, breastfeeding, maternal antibodies, Italy</td>
<td>2-May-20</td>
<td>Neonatal Late Onset Infection With Severe Acute Respiratory Syndrome Coronavirus 2</td>
<td>American Journal of Perinatology</td>
<td>Short Communication</td>
<td>This observational study aimed to evaluate post-discharge SARS-CoV-2 status of newborns (born to pregnant women with COVID-19) who were negative for SARS-CoV-2 infection at birth. Of seven pregnant women with documented SARS-CoV-2 infection, one woman had a spontaneous abortion at 8 weeks of gestational age, four women recovered and are still in follow-up, and two women delivered, at term and pre-term respectively. At birth and 3 days of life, both neonates were negative for SARS-CoV-2 infection. At the 15-day follow-up, one newborn tested positive on nasopharyngeal swab, although he was asymptomatic. This newborn had been breastfed by his mother, who wore a mask while recovering from COVID-19. Since breast milk samples tested negative, respiratory secretions were the likely source of late-onset neonatal infection. Authors speculate that SARS-CoV-2 IgG antibodies (documented at birth in neonatal blood) protected the newborn from symptomatic infection, preserving the benefits of breastfeeding. At follow-up, the second newborn tested negative for SARS-CoV-2 on nasopharyngeal and rectal swabs and had been fed expressed milk by his father. These findings highlight the importance of long-term follow-up of newborns to mothers with COVID-19 in pregnancy.</td>
<td>This case report describes one case of late-onset, asymptomatic neonatal infection, following delivery by a COVID-19 positive mother. It is possible that maternal SARS-CoV-2 IgG antibodies, documented in neonatal blood at birth, protected the newborn from a symptomatic course of infection.</td>
<td>Buonsenso D, Costa S, Sanguinetti M, et al. Neonatal Late Onset Infection With Severe Acute Respiratory Syndrome Coronavirus 2 [published online, 2020 May 2]. Am J Perinatol. 2020. doi:10.1055/s-0040-1710541</td>
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<tr>
<td>Pediatrics, emergency department, Italy</td>
<td>1-May-20</td>
<td>Children with Covid-19 in Pediatric Emergency Departments in Italy</td>
<td>The New England Journal of Medicine</td>
<td>Correspondence</td>
<td>On February 20, 2020, the incidence of COVID-19 began to rapidly escalate in Italy. Children &lt; 18 years of age who had COVID-19 composed only 1% of the total number of patients; 11% of these children were hospitalized, and none died. The authors of this letter describe the results of The Coronavirus Infection in Pediatric Emergency Departments (CONFIDENCE) study, involving a cohort of 100 Italian children &lt; 18 years of age with COVID-19</td>
<td>The authors of this letter discuss the results of The Coronavirus Infection in Pediatric Emergency Departments</td>
<td>Parri N, Fenge M. Children with Covid-19 in Pediatric Emergency Departments in Italy. N Engl J Med. 2020.</td>
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Public Health Measures

Adaptive primary antibody response. Mannose Binding Lectin (MBL) plays a pivotal role in innate immunity as a pattern-recognition receptor and may inhibit interaction between SARS-CoV-2 and the ACE2 binding site. Serum MBL levels are distinctly higher in children (3-19 years) than adults and decline with age. In addition, natural IgM antibody levels have been shown to reach adult values in children 5 to 10 years old and decline with age, especially after the early 40s. The first line of defense against viral infection and may serve a protective role in children.

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The first line of defense against viral infection and may serve a protective role in children.


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<tr>
<td>Radiology, children, China</td>
<td>1-May-20</td>
<td>Clinical Characteristics and Radiological Features of Children Infected With the 2019 Novel Coronavirus</td>
<td>Clinical Radiology</td>
<td>Original Research</td>
<td>The authors sought to summarize the common clinical and radiological (chest radiography and chest CT) findings of SARS-CoV-2 in children. They included nine children admitted from 22 January-9 February 2020 to a single center in southern China for a confirmed COVID-19 infection. Among the children, six had fever (including two with a cough), one had only a cough, one had a stuffy nose, and one was asymptomatic. Chest radiographs were mostly normal in six cases whereas increased and/or disordered bilateral bronchovascular shadows and dense hilar shadows were seen in three cases. Chest CT was normal in four cases. Typical CT findings included patchy, peripheral ground-grass opacities, subpleural lamellar dense shadows, and parenchymal bands. The clinical manifestations and radiological findings of the COVID-19 positive children were mild and lacked a typical pattern.</td>
<td>The authors were not able to identify a typical pattern of radiology findings in COVID-19 positive pediatric patients. Eight children in the study had mild symptoms and one was asymptomatic.</td>
<td>Lu Y, Wen H, Rong D et al. Clinical characteristics and radiological features of children infected with the 2019 novel coronavirus. [published online, 2020 May 1]. Clin Radiol. doi:10.1016/j.crad.2020.04.010</td>
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<td>Breastfeeding, Infants, Mother-to-child transmission</td>
<td>1-May-20</td>
<td>Breastfeeding of infants born to mothers with COVID-19: a rapid review</td>
<td>Annals of Translational Medicine</td>
<td>Rapid Review</td>
<td>This systematic review examined 4,481 records to assess mother-to-child transmission through milk and respiratory droplets during breastfeeding of mothers with COVID-19, SARS, MERS and influenza. Current findings indicate that SARS-CoV-2 viral nucleic acid has not been detected in breast milk and the benefits of breastfeeding may outweigh the risk of SARS-CoV-2 infection in infants. This article did conclude that because SARS-CoV-2 is transmitted via close contact and droplets, transmission from mother to infant may be possible while breastfeeding. However, by taking effective precautions, the risk of transmission while breastfeeding can be reduced but not entirely avoided.</td>
<td>There is no evidence of detected viral nucleic acid in breast milk of mothers with COVID-19. Taking appropriate precautions can reduce the risk of transmission contact during breastfeeding. The benefits of breastfeeding are thus likely to outweigh the risk of COVID-19 infection in infants.</td>
<td>Yang N, Che S, Zhang J, et al. COVID-19 Evidence and Recommendations Working Group (2020). Breastfeeding of infants born to mothers with COVID-19: a rapid review. Annals of translational medicine, 8(10), 618. doi:10.21037/atm-20-3299</td>
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<tr>
<td>Children, infants, neonates, diagnosis, screening, management, patient education, breastfeeding, WHO</td>
<td>1-May-20</td>
<td>Rapid Advice Guidelines for Management of Children With COVID-19</td>
<td>Annals of Translational Medicine</td>
<td>Guideline</td>
<td>An international multidisciplinary working group developed the present rapid advice guidelines for management of children with COVID-19 using the methods and process proposed by the WHO and GRADE working group. This guideline focuses on the management of children younger than 18 years old infected with SARS-CoV-2, including screening, diagnosis, treatment, and patient education. The target users of the guideline include pediatricians, clinical pharmacists, general practitioners, nurses, policy makers, national ministries of health, child rights advocacy groups and other health workers in general and children’s hospitals, primary clinics and communities worldwide, as well as families involved in the prevention and control of COVID-19 in children. The article proposes clinical questions, accompanied by rationale and evidence summaries to support the outline.</td>
<td>To the authors' knowledge, this guideline is the first international rapid advice guideline for management of children with COVID-19 based on WHO guidance approach, supported by systematic review of existing guidelines.</td>
<td>Liu E, Smyth RL, Luo Z, et al. Rapid advice guidelines for management of children with COVID-19. Ann Transl Med. 2020;8(10):617. doi:10.21037/atm-20-3754</td>
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<td><strong>Antiviral agents, children, bacterial co-infection, treatment</strong></td>
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<td>This review evaluated the efficacy and safety of antibiotic agents in children and adults with COVID-19. Since there was insufficient evidence for the treatment of COVID-19 in children, this study captured the treatment of COVID-19 in adults. Researchers found that although a high proportion of patients with COVID-19 were treated with antibiotics, there was no direct evidence to support the efficacy of antibiotic agents in children with COVID-19. This study recommends against the use of antibiotic agents for children with COVID-19 when there is no evidence of bacterial co-infection.</td>
<td>Wang J, Tang Y, Ma Y, et al. Efficacy and safety of antibiotic agents in children with COVID-19: a rapid review. Ann Transl Med. 2020;8(10):619. doi:10.21037/atm-20-3300</td>
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<td><strong>Children, asymptomatic infection, computed tomographic scans, western China</strong></td>
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<td>Results showed that children with asymptomatic infections should be quarantined for the same duration as symptomatic patients infected with SARS-CoV-2. This study found a significant negative correlation between the lymphocyte count and the duration of positive nucleic acid test.</td>
<td>Xu H, Liu E, Xie J, et al. A follow-up study of children infected with SARS-CoV-2 from western China. Ann Transl Med. 2020;8(10):623. doi:10.21037/atm-20-3192</td>
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### Summary & Key Points

- **Antiviral agents, children, bacterial co-infection, treatment**
  - This review evaluated the efficacy and safety of antibiotic agents in children and adults with COVID-19. Since there was insufficient evidence for the treatment of COVID-19 in children, this study captured the treatment of COVID-19 in adults. Researchers found that although a high proportion of patients with COVID-19 were treated with antibiotics, there was no direct evidence to support the efficacy of antibiotic agents in children with COVID-19.
  - This study recommends against the use of antibiotic agents for children with COVID-19 when there is no evidence of bacterial co-infection.
  - **Specific Observations**
    - This is the first systematic review aiming to assess the application of antibiotic agents for children with COVID-19.

- **Children, adults, clinical characteristics, symptoms, gastrointestinal, meta-analysis, rapid review**
  - This study goes to show that most children with COVID-19 have only mild symptoms, and many are asymptomatic.
  - **Specific Observations**

- **Children, asymptomatic infection, computed tomographic scans, western China**
  - Results showed that children with asymptomatic infections should be quarantined for the same duration as symptomatic patients infected with SARS-CoV-2. This study found a significant negative correlation between the lymphocyte count and the duration of positive nucleic acid test.
  - **Specific Observations**

- **Antiviral agents, children, meta-analysis, rapid review**
  - There is no evidence to bolster the use of antiviral agents in the treatment of COVID-19 in children, with the exception of clinical trials after thorough ethical assessment.
  - **Specific Observations**
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<tr>
<td>Children, IVIG, SARS, MERS, ARDS, systematic review</td>
<td>1-May-20</td>
<td>Effectiveness of Intravenous Immunoglobulin for Children With Severe COVID-19: A Rapid Review</td>
<td>Annals of Translational Medicine</td>
<td>Original Article</td>
<td>In this systematic review of literature on the use of IV immunoglobulin (IVIG) in patients with COVID-19, SARS, or MERS, including both adults and children, a total of 1,519 articles were identified. Finally, six studies met the inclusion criteria, including one randomized controlled trial (RCT), four case series and one case report involving 198 patients. One case series showed that survival of COVID-19 patients with acute respiratory distress syndrome (ARDS) had not improved with IVIG therapy. One case report showed high-dose IVIG could improve the outcome of COVID-19 adults. Three observational studies showed inconsistent results of the effect of IVIG on SARS patients. One RCT showed that IVIG did not reduce mortality or the incidence of nosocomial infection in adults with severe SARS.</td>
<td>There is insufficient existing evidence to support the efficacy or safety of IVIG in the treatment of COVID-19 in both adults and children.</td>
<td>Zhang J, Yang Y, Yang N, et al. Effectiveness of intravenous immunoglobulin for children with severe COVID-19: a rapid review. Ann Transl Med. 2020;8(10):625. doi:10.21037/atm-20-3305</td>
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<tr>
<td>Pregnancy complications, adverse neonatal outcomes, fetal death, SARS-CoV, MERS-CoV</td>
<td>1-May-20</td>
<td>Potential Implications of SARS-CoV-2 on Pregnancy</td>
<td>Taiwanese Journal of Obstetrics and Gynecology</td>
<td>Correspondence</td>
<td>To date, there are limited data on the consequences of COVID-19 on pregnancy; however, SARS in 2003 and MERS in 2012 were responsible for severe complications during pregnancy. In a review of previous coronavirus infections in pregnancy, there were 13 cases of SARS-CoV and 11 cases of MERS-CoV reported in the literature. Maternal outcomes of the 13 SARS cases include: 4 had miscarriage, 2 opted for termination of pregnancy, 2 required mechanical ventilation, 3 were treated conservatively, and 2 died. No neonatal adverse effect was noted except for 2 premature births. Maternal outcomes of the 11 MERS-CoV cases include: 2 were asymptomatic, 2 required mechanical ventilation, 3 were treated conservatively, 1 refused treatment, and 3 died. 2 cases of intrauterine fetal demise and 1 fetal death due to prematurity were reported. Neonatal infection due to possible vertical transmission was not detected in any of the SARS or MERS cases, except for 1 SARS case in the United States where cord blood and breast milk were positive for the SARS-CoV antibody.</td>
<td>In light of SARS-CoV-2 having similar pathogenic characteristics as SARS-CoV and MERS-CoV, pregnant women who become infected are at risk for adverse maternal and fetal complications.</td>
<td>Tseng JY. Potential implications of SARS-CoV-2 on pregnancy. Taiwan J Obstet Gynecol. 2020;59(3):464-465. doi:10.1016/j.tjog.2020.03.025</td>
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<td>Pregnancy, prenatal care, well-child visit, interim schedule</td>
<td>1-May-20</td>
<td>Interim Schedule for Pregnant Women and Children During the COVID-19 Pandemic</td>
<td>Journal of the College of Family Physicians of Canada</td>
<td>Practice</td>
<td>Pregnant women, newborns, and children due for vaccinations still require care during the COVID-19 pandemic. Given that there is a need to reduce the number of visits to the clinic, and women, children and their caregivers might wish to reduce exposure to others, the timing and frequency of visits can be adjusted. Many health care providers are transitioning to virtual visits instead of in-person visits whenever possible. The goal of this guide is to propose an interim well-child and prenatal visit schedule that providers can use and adapt to their local settings.</td>
<td>This guide proposes an interim schedule for well-child and prenatal visits given the need to reduce the number of clinic visits during the pandemic.</td>
<td>Bogler T, Bogler O. Interim schedule for pregnant women and children during the COVID-19 pandemic. Can Fam Physician. 2020;66(5):e155-e161.</td>
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<td>Infant, malnutrition, critical disease, T cell counts, nasopharyngeal viral shedding</td>
<td>1-May-20</td>
<td>A Typical Case of Critically Ill Infant of Coronavirus Disease 2019 With Persistent Reduction of T Lymphocytes</td>
<td>The Pediatric Infectious Disease Journal</td>
<td>Original Studies</td>
<td>This case presents a critically ill, 8-month-old male infant with COVID-19 and a history of poor growth and malnutrition, in addition to past neonatal cardiac surgery and two episodes of pneumonia in early infancy. Once admitted to the hospital, he developed life-threatening clinical features of COVID-19, including high fever, septic shock, recurrent apnea, petechiae and acute kidney injury and persistent reduction of CD3+, CD4+ and CD8+ T cells. The duration of nasopharyngeal virus shedding lasted 49 days despite administration of lopinavir/ritonavir for 8 days. CD3+, CD4+ and CD8+ T cell counts were partially recovered 68 days post-disease onset. Nucleic acid tests and serum antibody levels for SARS-CoV-2 in the infant’s mother, who</td>
<td>A persistent reduction of CD4+ and CD8+ T cells as well as prolonged nasopharyngeal viral shedding were key clinical features of a critically ill infant with COVID-19 in this case study.</td>
<td>Qiu L, Jiao R, Zhang A, et al. A Typical Case of Critically Ill Infant of Coronavirus Disease 2019 With Persistent Reduction of T Lymphocytes [published online, 2020 May 1]. Pediatr Infect Dis J. 2020. doi:10.1097/INF.0000000000002720</td>
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<td>Pregnancy, maternal morbidity, critical care, mechanical ventilation, USA</td>
<td>1-May-20</td>
<td>Care of Critically Ill Pregnant Patients With COVID-19: A Case Series</td>
<td>American Journal of Obstetrics and Gynecology</td>
<td>Research Letter</td>
<td>This retrospective, multi-center case series describes 5 symptomatic pregnant women with positive SARS-CoV-2 testing and requiring critical care. Women were in their late second (n=3) or third (n=2) trimester. At the end of the study period, 1 woman is still critically ill and hasn't delivered, 3 had uncomplicated cesarean delivery, and 1 was discharged and is receiving close outpatient follow up. Intubation timing ranged from 7-14 days from symptom onset in these cases. Various oxygen delivery methods, including high flow nasal cannula, noninvasive positive pressure ventilation, and endotracheal intubation, can all be utilized safely in pregnancy. For intubated patients with COVID-19, timing of delivery must balance maternal and neonatal risk and benefit, with delivery considered a potential tool to improve ventilation due to physiologic changes associated with pregnancy. There is limited evidence to guide specific management around fetal monitoring, administration of antenatal corticosteroids, and delivery in patients with COVID-19.</td>
<td>This case series presents strategies for management of critically ill pregnant women with COVID-19, using various oxygen delivery methods.</td>
<td>Hirshberg A, Kern-Goldberger AR, Levine LD, et al. Care of critically ill pregnant patients with COVID-19: a case series [published online, 2020 May 1]. Am J Obstet Gynecol. 2020. doi:10.1016/j.ajog.2020.04.029</td>
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<td>Immuno-compromised children, immuno-modulatory therapy, UK NICE</td>
<td>1-May-20</td>
<td>Covid-19 Is No Worse in Immunocompromised Children, Says NICE</td>
<td>BMJ</td>
<td>News</td>
<td>The UK National Institute for Health and Care Excellence (NICE) recently issued a guideline, stating that “COVID-19 usually causes a mild, self-limiting illness in children and young people, even in those who are immuno compromised.” NICE advises continuation of usual treatment with reduced face-to-face contact where safely possible, as well as discussion between patients and providers regarding the risks and benefits of initiating immuno-modulatory therapies. Patients taking drugs that affect the immune response may have atypical presentations of COVID-19; for example, patients taking prednisolone may not develop fever. In addition, the guidelines warn against the use of empirical antibiotics, unless there is clinical suspicion of bacterial infection or co-infection.</td>
<td>This news report describes recent rapid guidelines from the UK on caring for immuno-compromised children during the COVID-19 pandemic. Existing data suggests that immuno-compromised children are not at higher risk for severe disease.</td>
<td>Wise J. Covid-19 is no worse in immunocompromised children, says NICE. BMJ. 2020;369:m1802. Published 2020 May 1. doi:10.1136/bmj.m1802</td>
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<td>Child, sickle cell disease, acute chest syndrome, anti-human IL-6 receptor monoclonal antibody</td>
<td>1-May-20</td>
<td>Dramatic Improvement After Tocilizumab of a Severe COVID-19 in a Child With Sickle Cell Disease and Acute Chest Syndrome</td>
<td>American Journal of Hematology</td>
<td>Correspondence</td>
<td>Tocilizumab (TCZ) was administered to a 16-year-old girl with homozygous sickle cell disease (SCD) who developed severe COVID-19 associated with acute chest syndrome and pulmonary embolism. On admission, levels of C-reactive protein, lactate dehydrogenase, and D-dimer were increased. The patient required non-invasive ventilation, red blood cell exchange transfusion followed by simple transfusion, and anticoagulation. Plasma levels of pro-inflammatory IL-6 were extremely high and increased further, after TCZ injection, before decreasing. The patient’s respiratory status, as well as CT pulmonary angiography imaging, improved dramatically following TCZ treatment.</td>
<td>Tocilizumab, an anti-human IL-6 receptor monoclonal antibody, appears to be safe and effective treatment for severe COVID-19 and acute chest syndrome in children with sickle cell disease.</td>
<td>Odévré MH, de Marcellus C, Ducou Le Pointe H, et al. Dramatic improvement after Tocilizumab of a severe COVID-19 in a child with sickle cell disease and acute chest syndrome [published online, 2020 May 1]. Am J Hematol. 2020. doi:10.1002/ajh.25855</td>
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<td>Neonatal management, infection control, telehealth, routine follow-up, China</td>
<td>1-May-20</td>
<td>Neonatal Management During the Coronavirus Disease (COVID-19) Outbreak: The Chinese Experience</td>
<td>NeoReviews</td>
<td>Article</td>
<td>This article reviews published information from Chinese pediatric and neonatal societies regarding their approach to neonatal management during the 2019-2020 COVID-19 outbreak in China. These approaches include consensus guidelines focused on perinatal infection prevention and high-risk neonatal transport, as well as strategies for transitioning routine neonatal outpatient follow-up to an online program.</td>
<td>This review summarizes infection control measures and telehealth strategies for routine, neonatal follow-up, published by Chinese pediatric and neonatal societies.</td>
<td>Ma X, Zhu J, Du L. Neonatal Management During the Coronavirus Disease (COVID-19) Outbreak: The Chinese Experience. NeoReviews. 2020;21(5):e293-e297. doi:10.1542/neo.21-5-e293</td>
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<td>Children, age-related susceptibility, thymus, adaptive immune system, prolonged viral elimination</td>
<td>1-May-20</td>
<td>Why the SARS-Cov-2 Has Prolonged Spreading Time in Children?</td>
<td>Pediatric Pulmonology</td>
<td>Letter to the Editor</td>
<td>Aging presents structural and functional loss, affecting the immune system. Thymus hypoplasia and the gradual decrease in both function and number of T cell/Treg cells in the elderly increase susceptibility to viral infections. In contrast, in children, the thymus is active and associated with an adequate adaptive immune response, shaped dynamically by vaccines and common viral infections in childhood. This controlled and organized immune response protects children from severe tissue damage but also makes viral elimination more difficult, resulting in prolonged elimination time as observed in existing case studies.</td>
<td>This letter argues that a functional thymus and a controlled, adaptive immune response prevents children from COVID-19 related tissue damage but contributes to prolonged viral elimination time.</td>
<td>Yurttutan S, İpek S, Gülü UU. Why the SARS-Cov-2 has prolonged spreading time in children? [published online, 2020 May 1]. Pediatr Pulmonol. 2020. doi:10.1002/ppul.24795</td>
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<td>Children, pediatric emergency department, clinical characteristics, epidemiology, Italy</td>
<td>1-May-20</td>
<td>Children with Covid-19 in Pediatric Emergency Departments in Italy</td>
<td>New England Journal of Medicine</td>
<td>Correspondence</td>
<td>The Coronavirus Infection in Pediatric Emergency Departments (CONFIDENCE) study involved a cohort of 100 Italian children (&lt;18 years) with COVID-19, confirmed by RT-PCR testing of nasal or nasopharyngeal swabs. Children (median age 3.3 years, range 0-27.5 years) were assessed between March 3 and March 27, 2020 in 17 pediatric emergency departments. Exposure to SARS-CoV-2 from an unknown source or from a source outside the child’s family accounted for 55% of the cases of infection. Common symptoms were cough (44%) and no feeding or difficulty feeding (23%). Among the entire cohort, 21% of patients were asymptomatic, 58% had mild disease, 19% had moderate disease, 1% had severe disease, and 1% were in critical condition. Of the 9 patients who received respiratory support, 6 had coexisting conditions. No deaths were reported.</td>
<td>Most children with COVID-19 in this Italian cohort had mild disease; no deaths were reported. The incidence of transmission through family cluster exposure was lower in this cohort, compared to previously studied cohorts in other countries.</td>
<td>Parri N, Lenge M, Buonoseno D. Children with Covid-19 in Pediatric Emergency Departments in Italy [published online, 2020 May 1]. NEJM. doi:10.1056/NEJMct2007617</td>
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<td>Pregnancy, mother-newborn separation, breastfeeding, infection control, prenatal clinics</td>
<td>1-May-20</td>
<td>Coronavirus Disease 2019 (COVID-19) and Pregnancy: Responding to a Rapidly Evolving Situation</td>
<td>Obstetrics &amp; Gynecology</td>
<td>Current Commentary</td>
<td>Although guidelines for pregnant women have been rapidly developed based on the best available evidence, additional information is critically needed to inform key decisions, such as whether pregnant health care workers should receive special consideration, whether to temporarily separate infected mothers and their newborns, and whether it is safe for infected women to breastfeed. Some current recommendations are well supported, based largely on what we know from seasonal influenza: patients should avoid contact with ill persons, avoid touching their face, cover coughs and sneezes, wash hands frequently, disinfect contaminated surfaces, and stay home when sick. Prenatal clinics should ensure all pregnant women and their visitors are screened for fever and respiratory symptoms, and symptomatic women should be isolated from well women and required to wear a mask. The authors recommend that as COVID-19 rapidly spreads, obstetricians must keep up to date on the latest information.</td>
<td>This review discusses current guidelines for infection control in pregnant women.</td>
<td>Rasmussen SA, Jamieson DJ. Coronavirus Disease 2019 (COVID-19) and Pregnancy: Responding to a Rapidly Evolving Situation. Obstet Gynecol. 2020;135(5):999-1002. doi:10.1097/AOG.0000000000003873</td>
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