| Key Terms | Date Published | Title | Journal / Source | Type of Publication | Summary & Key Points | Specific Observations | Full Citation |
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| Corticosteroid therapy, pregnancy, fetal lung maturation | 30-Apr-20 | Antenatal Corticosteroid Therapy and COVID-19: Pathophysiological Considerations | Acta Obstetricia et Gynecolo-gica Scandinavica | Letter to Editor | The usefulness and safety of corticosteroids as an adjuvant therapy for COVID-19 pneumonia remains controversial. Corticosteroids may diminish the inflammatory response, a major factor for lung damage and acute respiratory distress syndrome in viral respiratory tract infection. Some patients with COVID-19 exhibit biphasic disease evolution with a mild presentation followed by a secondary respiratory deterioration due to a cytokine storm, despite decreasing viral load. Therefore, early administration of corticosteroid therapy might be particularly consequential. However, previous studies on corticosteroid therapy in SARS-CoV and MERS-CoV illustrated delayed viral clearance, with no survival benefit and perhaps even adverse outcomes. In particular, potentiation of angiotensin II, which plays a key role in SARS-CoV-2 pathophysiology, by corticosteroids might have a detrimental effect. These considerations should be weighed when recommending corticosteroid administration for fetal lung maturation when preterm delivery is anticipated in pregnant women. | The use of corticosteroids to promote fetal lung maturation is complicated by the potentially adverse effects of corticosteroid therapy on pregnant women with COVID-19. | Sichitiu J, Fakhouri F, Desseauve D. Antenatal corticosteroid therapy and COVID-19: pathophysiological considerations [published online, 2020 Apr 30]. Acta Obstet Gynecol Scand. 2020. doi:10.1111/aogs.13887 |
| Children, treatment, hydroxy-chloroquine, azithromycin | 30-Apr-20 | The Imperative of Early Treatment for Children With COVID-19 Infection | Indian Pediatrics | Correspondence | There are limited data on risk factors for severe SARS-CoV-2 infection in children, and the long-term effects on the lungs of COVID-19 in children remain unknown, even for those with moderate symptoms. Authors of this correspondence argue that pediatricians should consider employing available COVID-19 treatments (e.g. hydroxychloroquine, azithromycin), which are already widely used for other indications in children. Side effects can be effectively monitored in a hospital environment. | Authors argue for the early treatment of children with moderate to severe respiratory symptoms, using available drugs that have been proposed to treat COVID-19. | Elenga N. The Imperative of Early Treatment for Children with COVID-19 Infection [published online ahead of print, 2020 Apr 30]. Indian Pediatr. 2020;S097475591600169. |
| Pregnancy, cesarean delivery, neonatal outcomes, preterm birth, fetal distress, vertical transmission | 30-Apr-20 | Coronavirus Disease 2019 (COVID-19) and Pregnancy: A Systematic Review | The Journal of Maternal-Fetal & Neonatal Medicine | Short Report | This report summarizes currently available evidence on maternal, fetal, and neonatal outcomes of pregnant women infected with COVID-19, published between January 1 and March 26, 2020. In total, 18 studies, describing 114 pregnant women, were included in the review. Fever (87.5%) and cough (53.8%) were the most commonly reported symptoms, followed by fatigue (22.5%), diarrhea (8.8%), dyspnea (11.3%), sore throat (7.5%), and myalgia (16.3%). The majority of patients (91%) had cesarean delivery due to various indications. In terms of fetal and neonatal outcomes, stillbirth (1.2%), neonatal death (1.2%), preterm birth (21.3%), low birth weight (<2500 g, 5.3%), fetal distress (10.7%), and neonatal asphyxia (1.2%) were reported. Of 84 live births with available data, there are reports of RT-PCR positive neonatal throat swabs (n=2), elevated neonatal blood IgG but normal IgM (n=3), and elevated neonatal blood IgG and IgM (n=2). No direct evidence of intrauterine vertical transmission has been found. | The clinical characteristics of pregnant women with COVID-19 are similar to those of non-pregnant adults. Fetal and neonatal outcomes appear favorable in most cases, but available data only include pregnant women infected in their third trimesters. | Yang Z, Wang M, Zhu Z, Liu Y. Coronavirus disease 2019 (COVID-19) and pregnancy: a systematic review [published online, 2020 Apr 30]. J Matern Fetal Neonatal Med. 2020;1-4. doi:10.1080/14767058.2020.1759541 |
| Pregnancy, second trimester, miscarriage, placental pathology, Switzerland | 30-Apr-20 | Second-Trimester Miscarriage in a Pregnant Woman With SARS-CoV-2 Infection | JAMA | Research Letter | This case report describes a 28-year-old, primigravida pregnant woman with RT-PCR confirmed COVID-19. The patient presented at 19 weeks' gestation with fever, myalgia, fatigue, mild pain with swallowing, diarrhea, and dry cough for 2 days. She was given oral acetaminophen and discharged but returned two days later with severe uterine contractions and no improvement of symptoms. Amniotic fluid and vaginal swabs, sampled during labor, tested negative for SARS-CoV-2. A stillborn infant was delivered after 10 hours of labor. Swabs from the axillae, mouth, meconium, and fetal blood, obtained within minutes of birth, tested negative for SARS-CoV-2. | This case report contributes to a gap in data on maternal SARS-CoV-2 infection during the second trimester of pregnancy and provides evidence for placental pathology based on | Baud D, Greub G, Favre G, et al. Second-Trimester Miscarriage in a Pregnant Woman With SARS-CoV-2 Infection. JAMA. Published online April 30, 2020. doi:10.1001/jama.2020.7233 |

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| | | | | | Fetal autopsy showed no malformations, and fetal lung, liver, and thymus biopsies were negative for SARS-CoV-2. Placental swabs and biopsies were positive for SARS-CoV-2, and placental histology demonstrated mixed inflammatory infiltrates of neutrophils and monocytes. These findings support placental infection with SARS-CoV-2. No other cause of fetal demise was identified. There was no evidence of vertical transmission, but absence of the virus is not surprising given the stage of fetal development and short period of maternal infection. It is important to note that infection of the maternal side of the placenta, inducing placental insufficiency and resulting in miscarriage of fetal growth restriction, was observed in 40% of maternal infections with MERS-CoV. | RT-PCR and histological findings. Whether SARS-CoV-2 crosses the placental barrier warrants further investigation. | |
| Pregnancy, preterm delivery, neonatal outcomes | 30-Apr-20 | COVID-19 in Pregnancy: Risk of Adverse Neonatal Outcomes | Journal of Medical Virology | Letter to the Editor | Authors reply to the study by Siyu Chen et al. and draw attention to a growing body of evidence pointing toward an under-addressed association between preterm maternal SARS-CoV-2 infection, preterm delivery and adverse neonatal outcomes, which is not reflected in Chen et al.'s small cohort. In addition, vertical transmission, which was not tested by Chen et al., should not be excluded as a potential mechanism for viral spread. | Preterm delivery is an under-addressed issue in current cohorts of pregnant women with SARS-CoV-2 infection. | Mehan A, Venkatesh A, Girish M. COVID-19 in pregnancy: risk of adverse neonatal outcomes [published online, 2020 Apr 30]. J Med Virol. 2020. doi:10.1002/jmv.25959 |
| Community acquired pneumonia, children, human rhinovirus, Italy | 29-Apr-20 | A single centre study of viral community-acquired pneumonia in children: No evidence of SARS-CoV-2 from October 2019 to March 2020. | Journal of Clinical Virology | Research Article | Community acquired pneumonia (CAP) is an important cause of morbidity and mortality in children, with multifactorial viral and bacterial etiologies. The present study examines viral etiologies in children less than 14 years old, with clinical and radiological diagnoses of pneumonia at a pediatric emergency department in Rome, from October 1 to March 31, 2020. Within 24 hours of admission, every patient underwent a nasal wash for detection of respiratory viruses, including SARS-CoV-2 since the study period partially overlapped with peak COVID-19 incidence in Italy. 42 children (median age 29.5 months, range 1.7-184) were enrolled. Two children (2/42, 5%) were admitted to the PICU. 31/42 (74 %) had at least one virus detected; of these, 7/42 (17 %) had a coinfection. The only human Coronavirus detected was HUK1 in 2/42 children (5%); none of children tested positive for SARS-CoV-2. Analyzing all detected pathogens, human rhinovirus was the most frequently detected agent (17/42, 40.5 %), followed by respiratory syncytial virus (12/42, 28.5 %) and influenza A and B (6/42 14.3 %). | SARS-CoV-2 was not detected in a cohort of 42 hospitalized children with pneumonia in Rome, Italy. The most commonly detected viral agent was human rhinovirus. | Mancino E, Cristiani L, Pierangeli A, et al. A single centre study of viral community-acquired pneumonia in children: No evidence of SARS-CoV-2 from October 2019 to March 2020 [published online 2020 Apr 29]. J Clin Virol. doi:10.1016/j.jcv.2020.104385 |
| Children, epidemiology, SARS, MERS, H1N1 influenza | 29-Apr-20 | The Curious Case of COVID-19 in Children | Journal of Pediatrics | Letter to Editor | The CDC (USA) considers children, especially those under 5 years of age, as a high-risk category for influenza-related disease. The age distribution of patients in the COVID-19 pandemic is incongruent with that of the H1N1 pandemic of 2009. At the authors' tertiary care center, 215 individuals have been evaluated for COVID-19 through April 10, 2020. Of those tested, all 22 individuals under the age of 18 years were negative for SARS-CoV-2. This report presents epidemiological differences among 3 coronaviruses (SARS, MERS, COVID-19) and H1N1-2009 influenza in children. | Epidemiological differences between SARS, MERS, COVID-19, and the H1N1-influenza pandemic (2009) are outlined in this letter. | Gupta S, Malhotra N, Gupta N, Agrawal S, Ish P. The curious case of COVID-19 in children [published online, 2020 Apr 29]. J Pediatr. 2020. doi:10.1016/j.jpeds.2020.04.062 |
| Children, age-related susceptibility, epidemiology, transmission model, social distancing | 29-Apr-20 | Changes in contact patterns shape the dynamics of the COVID-19 outbreak in China | Science | Report | As transmission intensifies in other countries, the interplay between age, contact patterns, social distancing, susceptibility to infection, and COVID-19 dynamics remains unclear. In this report, authors analyze contact survey data from Wuhan and Shanghai before and during the outbreak, as well as contact tracing information from Hunan Province. Daily contacts were reduced 7-8-fold during the COVID-19 social distancing period, with most interactions restricted to the household. Children 0-14 years are less | This transmission model for COVID-19 shows that children (0-14 years) are less susceptible to SARS-CoV-2 infection than adults (15-64 years). | Zhang J, Litvinova M, Liang Y, et al. Changes in contact patterns shape the dynamics of the COVID-19 outbreak in China [published online, 2020 Apr 29]. Science. 2020. doi:10.1126/science.abb8001 |

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| interventions, China | | | | | susceptible to SARS-CoV-2 infection than adults 15-64 years of age (OR 0.34, 95% CI 0.24-0.49). In contrast, individuals over 65 years are more susceptible to infection (OR 1.47, 95% CI: 1.12-1.92). Building a transmission model, the authors conclude that social distancing alone, as implemented in China during the outbreak, is sufficient to control COVID-19. While proactive school closures cannot interrupt transmission on their own, they can reduce peak incidence by 40-60% and delay the epidemic. | The authors advocate for the design of long-term targeted strategies to control COVID-19, along with large scale testing and contact tracing. | |
| Neonates, infants, clinical characteristics, epidemiology, Italy | 29-Apr-20 | Novel Coronavirus Disease (COVID-19) in Newborns and Infants: What We Know So Far | Italian Journal of Pediatrics | Review | Few cases of COVID-19 have been observed in children, and adolescents who seem to have a more favorable clinical course than other age groups. Even fewer cases have been observed in newborns. This review provides an overview of existing knowledge on SARS-CoV-2 epidemiology, transmission, the associated clinical presentation and outcomes in newborns and infants up to 6 months of life. | This review discusses clinical features and management of COVID-19 in newborns and infants up to 6 months of life. | De Rose DU, Piersigilli F, Ronchetti MP, et al. Novel Coronavirus disease (COVID-19) in newborns and infants: what we know so far. Ital J Pediatr. 2020;46(1):56, doi:10.1186/s13052-020-0820-x |
| Pregnancy, vaginal delivery, neonates, China | 29-Apr-20 | Analysis of Vaginal Delivery Outcomes Among Pregnant Women in Wuhan, China During the COVID-19 Pandemic | International Journal of Gynecology & Obstetrics | Clinical Article | This retrospective study compared vaginal delivery outcomes between 10 pregnant women with clinical diagnosis of COVID-19 and 53 pregnant women without COVID-19, admitted between January 20 and March 2, 2020. There were no significant differences in gestational age, postpartum hemorrhage, and perineal resection rates between the two groups. There were no significant differences in birth weight of neonates and neonatal asphyxia rates between the two groups. Neonates delivered by pregnant women with clinical diagnosis of COVID-19 tested negative for SARS-CoV-2 infection. | Findings from this study support safe vaginal delivery in pregnant women with COVID-19, without exacerbating symptoms and without increasing risk of SARS-CoV-2 infection in neonates. | Liao J, He X, Gong Q, Yang L, Zhou C, Li J. Analysis of vaginal delivery outcomes among pregnant women in Wuhan, China during the COVID-19 pandemic [published online, 2020 Apr 29]. Int J Gynaecol Obstet. 2020. doi:10.1002/ijgo.13188 |
| Pregnancy, low-dose aspirin therapy, preeclampsia prophylaxis, thrombo-cytopenia, DIC | 29-Apr-20 | Should We Stop Aspirin Prophylaxis in Pregnant Women Diagnosed With COVID-19? | Ultrasound in Obstetrics & Gynecology | Letter to the Editor | COVID-19 can progress to critical illness with acute respiratory distress and disseminated intravascular coagulation (DIC). Biomarkers of DIC (elevated D-dimer and thrombocytopenia) are detectable early in the course of disease and correlate with poor prognosis. Multiple phenomena underpin the SARS-CoV-2 associated thrombocytopenia: decreased production in infected hematopoietic marrow as well as increased consumption by DIC and in damaged lung tissue and capillaries. Aspirin belongs to the group of nonsteroidal anti-inflammatory drugs (NSAIDs), which are controversial in COVID-19 patients. Currently, prophylactic administration of low-dose aspirin to pregnant women is common and indicated in those at risk for preeclampsia (10-15% of all pregnancies). The risk/benefit ratio of aspirin therapy in pregnant women with COVID-19 should be carefully evaluated, taking into account the indication, gestational age, and platelet count. | Authors recommend cessation of low-dose aspirin therapy for preeclampsia prophylaxis in pregnant women upon diagnosis of COVID-19, often associated with thrombocytopenia. | Mathilde G, Rolnik DL, Hoffman MK, Panchaud A, Baud D. Should we stop aspirin prophylaxis in pregnant women diagnosed with COVID-19? [published online, 2020 Apr 29]. Ultrasound Obstet Gynecol. 2020. doi:10.1002/uog.22063 |
| Hunger, poverty, lockdown measures, Nigeria | 29-Apr-20 | COVID-19 in Nigeria: a disease of hunger | The Lancet Respiratory Medicine | Spotlight | With a population of over 200 million people, Nigeria is one of the most populous black nations worldwide. On Feb 27, 2020, the first official case of COVID-19 in the state of Lagos was announced. As of April 22, there were 873 confirmed cases, 197 recoveries, and 28 deaths. A large proportion of the population, especially in the commercial hub of Lagos, live on daily income. Thus, lockdown orders announced on March 30 for 3/36 states could lead to widespread hunger. The author advocates that the Nigerian government must protect its citizens by providing them with the necessary commodities to help mitigate the consequences of this pandemic. | COVID-19 lockdown measures imposed across several Nigerian states may exacerbate poverty and widespread hunger. | Kalu B. COVID-19 in Nigeria: a disease of hunger [published online, 2020 Apr 29]. Lancet Resp Med. 2020. doi:10.1016/S2213-2600(20)30220-4 |

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| Labor and delivery, infection control, Hong Kong | 29-Apr-20 | Infection Control Measures for COVID-19 in the Labour Suite and Neonatal Unit | Neonatology | Commentary | Two fundamental principles have been repeatedly emphasized concerning maternal COVID-19 during pregnancy. First, limited available evidence suggests that SARS-CoV-2 is unlikely to be transmitted vertically (even in preterm infants), though recent reports indicated that newborns could acquire SARS-CoV-2 infection postnatally within days after birth. Secondly, maternal SARS or COVID-19 infection per se should not be an indication for early delivery. The timing and mode of delivery should solely be determined by the maternal respiratory status and obstetric indications. Guided by these principles, this commentary emphasizes effective triaging and protection of healthcare workers in maternal/neonatal units as key infection control measures, while noting that different clinical and physical setups, as well as admission criteria, should inform recommendations. | This commentary highlights recommended infection control measures for maternal/neonatal units in hospitals. | Ng PC. Infection Control Measures for COVID-19 in the Labour Suite and Neonatal Unit [published online, 2020 Apr 29]. Neonatology. 2020;1-3. doi:10.1159/000508002 |
| Breastfeeding, social media, Twitter data, scientific guidance | 28-Apr-20 | Distance, Diffusion, and the Role of Social Media in a Time of COVID Contagion | Maternal & Child Nutrition | Letter to the Editor | Since December 2019, a team of health and social scientists have captured Twitter data and employed social network analyses to examine the diffusion of pseudoscience and misinformation related to breastfeeding. Our findings indicate a “breastfeeding and COVID-19” social network totaling 756 unique users, 880 tweets and 28 distinct communities. The WHO and other professional users act as key diffusers of information. While the vast majority of tweets reflected current scientific guidance, updates from researchers about ongoing COVID-19 studies, as well as community engagement and breastfeeding advocacy, 6% of tweets contained scientifically unfounded recommendations and commercial promotions. | An analysis of Twitter data revealed that the majority of tweets related to COVID-19 and breastfeeding reflects scientific guidance. Vigilance is still necessary to counter the diffusion misinformation. | Moukarzel S, del Fresno M, Bode L, Daly AJ. Distance, Diffusion, and the Role of Social Media in a Time of COVID Contagion [published online 2020 April 28]. doi:10.1111/mcn.13025 |
| Pregnancy, lung ultrasound, pleural effusion, Italy | 28-Apr-20 | The Diagnosis of Pneumonia in a Pregnant Woman With COVID-19 Using Maternal Lung Ultrasound | American Journal of Obstetrics & Gynecology | Clinical Opinion | Lung ultrasound examination has been demonstrated to be an accurate imaging method to detect pulmonary and pleural conditions. During pregnancy, there is a need for rapid assessment of the maternal lung in patients with suspected COVID-19. Typical ultrasound features of this pulmonary pathology, including diffuse hyperechoic vertical artifacts with thickened pleural line and "white lung" with patchy distribution, were observed in a pregnant patient with COVID-19 in this case study. Chest X-ray, performed on the same day, was not suggestive for viral pneumonia, but throat swabs for SARS-CoV-2 by RT-PCR confirmed the COVID-19 diagnosis. | In this case report, point-of-care lung ultrasound indicated COVID-19 diagnosis, in the presence of normal chest X-ray findings, in a pregnant woman who was later confirmed to have SARS-CoV-2 infection by RT-PCR. | Inchingolo R, Smargiassi A, Moro F, et al. The Diagnosis of Pneumonia in a Pregnant Woman with COVID-19 Using Maternal Lung Ultrasound [published online, 2020 Apr 28]. Am J Obstet Gynecol. 2020. doi:10.1016/j.ajog.2020.04.020 |
| Pregnancy, maternal mortality, respiratory failure | 28-Apr-20 | Maternal Death Due to COVID-19 Disease | American Journal of Obstetrics & Gynecology | Original Research | Given the disproportionate burden of severe and fatal respiratory disease previously documented among pregnant women following other related coronavirus outbreaks (SARS-CoV, MERS-CoV) and influenza pandemics over the last century, the absence of reported maternal morbidity and mortality with COVID-19 disease is unexpected. This report describes a multi-institution adjudicated case series from Iran, which includes 9 pregnant women diagnosed with severe COVID-19 during their 2nd or 3rd trimester. At the time of reporting, 7 of 9 women died, 1 of 9 remains critically ill and ventilator-dependent, and 1 of 9 recovered after prolonged hospitalization. Self-verified familial/household cohort data showed that maternal outcomes were more severe when compared to other high and low-risk familial/household members (n=33 members for comparison). | This report describes 7 cases of maternal death in the 2nd or 3rd trimester, due to COVID-19, in Iran. There is a need for more rigorously collected surveillance data and recognition of COVID-19 associated maternal mortality. | Hantoushzadeh S, Shamshirsaz AA, Aleyasin A, et al. Maternal Death Due to COVID-19 Disease [published online, 2020 Apr 28]. Am J Obstet Gynecol. 2020. doi:10.1016/j.ajog.2020.04.030 |

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| Children, transmission dynamics, clinical characteristics, anal swab samples, China | 28-Apr-20 | Clinical and Transmission Dynamics Characteristics of 406 Children With Coronavirus Disease 2019 in China: A Review | Journal of Infection | Review | By searching available Chinese and English literature, data from 406 children with COVID-19 in China were analyzed and the following findings were obtained. In general, the incidence in children is low. Family cluster incidence is a dynamic transmission feature. Asymptomatic and mild infections account for 44.8% of reported cases, with only 7 cases of critical illness. Laboratory examination of lymphocyte count is not reduced, as it is for adults. Chest CT findings are less severe than those of adults. Only 55 of 406 cases were tested by anal swab for viral nucleic acid, 45 of which were positive (81.8% of stool samples). COVID-19 screening is needed in the pediatric fever clinic, and respiratory and digestive tract nucleic acid tests should be performed. The authors state that efforts should be made to prevent children from becoming a hidden source of transmission in kindergartens, schools and families. | Based on data from 406 children with COVID-19 in China, more children have asymptomatic infections, milder conditions, faster recovery, and better prognosis compared with adults. | Zhen-Dong Y Prof, Gao-Jun Z Prof, Run-Ming J, et al. Clinical and Transmission Dynamics Characteristics of 406 Children with Coronavirus Disease 2019 in China: A Review [published online, 2020 Apr 28]. J Infect. 2020. doi:10.1016/j.jinf.2020.04.030 |
| Dietary intervention, IL-6, adiponectin, lung infection, cytokine storm | 28-Apr-20 | Functional Role of Dietary Intervention to Improve the Outcome of COVID-19: A Hypothesis of Work | International Journal of Molecular Sciences | Hypothesis | Given the recent evidence in different hospitals suggesting IL-6 and TNF-α inhibitor drugs as a possible therapy for COVID-19, this report argues that a dietary intervention could be useful to ameliorate outcomes during therapy for COVID-19. Since COVID-19 infection can generate a mild or highly acute respiratory syndrome with a consequent release of pro-inflammatory cytokines, including IL-6 and TNF-α, a dietary regimen modification to increase levels of adiponectin, one of the most abundant circulating adipocytokines, may help regulate cytokine responses. Involvement of adiponectin has been demonstrated in several lung diseases and plays a crucial anti-inflammatory role in maintaining vascular homeostasis and protecting against dysfunction. | This proposed dietary intervention to improve therapeutic outcomes in patients with COVID-19 considers the anti-inflammatory role of adiponectin, a regulator of cytokine responses. | Messina G, Polito R, Monda V, et al. Functional Role of Dietary Intervention to Improve the Outcome of COVID-19: A Hypothesis of Work. Int J Mol Sci. 2020;21(9):E3104. Published 2020 Apr 28. doi:10.3390/ijms21093104 |
| Children, multisystem inflammatory state, intensive care, UK | 28-Apr-20 | Covid-19: Concerns Grow Over Inflammatory Syndrome Emerging in Children | BMJ | News | Doctors in the UK have been warned over a rising number of children presenting with a multisystem inflammatory state, characterized by over-production of cytokines, and needing intensive care. In an urgent alert shared by North Central London Clinical Commissioning Group and the Paediatric Intensive Care Society, doctors were told that while the unspecified number of cases may be connected to the current pandemic, the symptoms have been observed in both children who have tested positive and negative for COVID-19. It is noted that the cases have in common "overlapping features of toxic shock syndrome and atypical Kawasaki disease with blood parameters consistent with severe COVID-19 in children." Abdominal pain and gastrointestinal symptoms were also reported as common features, as well as cardiac inflammation. | Physicians in the UK raise warning over cases of children presenting with a multisystem inflammatory state. Symptoms are consistent with severe COVID-19 but have been observed in both COVID-19 positive and negative children. | Mahase E. Covid-19: concerns grow over inflammatory syndrome emerging in children. BMJ. 2020;369:m1710. Published 2020 Apr 28. doi:10.1136/bmj.m1710 |
| Children, immigrant families, health insurance coverage, Medicaid | 28-Apr-20 | Sheltering in Place in a Xenophobic Climate: COVID-19 and Children in Immigrant Families | Pediatrics | Perspectives | One in four children (more than 18 million) in the U.S. lives in an immigrant family, in which the child or at least one parent was born outside the U.S. Children in immigrant families (CIF) experience increased health and social risks compared to peers in non-immigrant families, including lower rates of health insurance coverage and higher poverty levels. The COVID-19 pandemic amplifies existing inequities and introduces new ones. One in three undocumented children are uninsured, and millions of CIF remain ineligible for Medicaid. Parental limited English proficiency remains a risk factor for poor health outcomes among children, including less diagnostic testing and higher rates of complications and adverse events. | The COVID-19 pandemic exacerbates health inequities experienced my children in immigrant families, disproportionately affected by lower health insurance coverage. | Cholera R, Falusi OO, Linton JM. Sheltering in Place in a Xenophobic Climate: COVID-19 and Children in Immigrant Families [published online, 2020 Apr 28]. Pediatrics. 2020. doi:10.1542/peds.2020-1094 |

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| Pregnancy, neonates, cesarean section, China | 28-Apr-20 | Clinical Presentations and Outcomes of SARS-CoV-2 Infected Pneumonia in Pregnant Women and Health Status of Their Neonates | Science Bulletin | Short Communication | In this retrospective study, five pregnant women were admitted between January 21 and February 9, 2020 to Wuhan Union Hospital. All patients were >34 weeks' gestation and presented with fever or respiratory symptoms. All were SARS-CoV-2 positive, confirmed by real-time RT-PCR and developed mild pneumonia during the course of hospitalization. Four patients delivered by cesarean section, and one delivered vaginally. Neonates were separated from their mothers at birth, without breastfeeding. There were no respiratory symptoms observed in neonates, and all tested negative on SARS-CoV-2 RT-PCR, using throat swab specimens collected at zero (1/5), one (2/5), or eight (2/5) days after birth. | Five neonates, born to mothers with confirmed COVID-19 in Wuhan, China, tested negative for SARS-CoV-2 infection in throat swab samples. | Xu L, Yang Q, Shi H, et al. Clinical presentations and outcomes of SARS-CoV-2 infected pneumonia in pregnant women and health status of their neonates [published online, 2020 Apr 28]. Sci Bull (Beijing). 2020. doi:10.1016/j.scib.2020.04.040 |
| Pregnancy, labor and delivery, intrapartum management | 28-Apr-20 | General Guidelines in the Management of an Obstetrical Patient on the Labor and Delivery Unit During the COVID-19 Pandemic | American Journal of Perinatology | Clinical Opinion | Data regarding COVID-19 in pregnancy are limited to case reports and small cohort studies. Clinical protocols and practice on labor and delivery units must adapt to optimize the safety of patients and health care workers and to better conserve resources. In this commentary, authors provide suggestions to meet these goals without impacting maternal or neonatal outcomes. They consider delivery planning, intrapartum management, use of medications like corticosteroids, magnesium sulfate, and NSAIDs. | This commentary outlines recommendations for adapting labor and delivery units to the COVID-19 context. | Stephens AJ, Barton JR, Bentum NA, et al. General Guidelines in the Management of an Obstetrical Patient on the Labor and Delivery Unit during the COVID-19 Pandemic [published online, 2020 Apr 28]. Am J Perinatol. 2020. doi:10.1055/s-0040-1710308 |
| Pregnancy, reproductive-age women, neonates, vertical transmission, delivery methods, China | 27-Apr-20 | Coronavirus Disease 2019 in Pregnancy | International Journal of Infectious Diseases | Research Article | This study aims to compare clinical course and outcomes between pregnant and reproductive-aged non-pregnant women with COVID-19, hospitalized from January 15 to March 15, 2020. Eighty-two patients (28 pregnant women, 54 reproductive-aged non-pregnant women) with laboratory confirmed COVID-19 were enrolled. Univariate regression indicated no association between pregnancy and the severity of disease (OR 0.73, 95% CI 0.08-5.15; p=0.76), virus clearance time (HR 1.16, 95% CI 0.65-2.01; p=0.62), and length of hospital stay (HR 1.10, 95% CI 0.66-1.84; p=0.71). There were 22 pregnant women who delivered 23 live births either by cesarean section (17, 60.7%) or vaginal delivery (5, 17.9%), and no neonate was infected with SARS-CoV-2. | Pregnant women have comparable clinical course and outcomes compared with reproductive-aged non-pregnant women when infected with SARS-CoV-2. No evidence supported vertical transmission of COVID-19 in the late stage of pregnancy in this study. | Qiancheng X, Jian S, Lingling P, et al. Coronavirus disease 2019 in pregnancy [published online, 2020 Apr 27]. Int J Infect Dis. 2020. doi:10.1016/j.ijid.2020.04.065 |
| Nutritional status, undernutrition, general population, hospitalized patients | 27-Apr-20 | Nutritional Status and COVID-19: An Opportunity for Lasting Change? | Clinical Medicine Journal | Rapid Report | Mortality appears to be highest among older people and those with comorbidities, who are also often the most at risk of undernutrition in society. Despite international efforts to identify a specific treatment, therapy remains supportive and is principally focused on optimizing respiratory function. However, the timely identification and correction of undernutrition also have the potential to improve outcomes cost effectively and should not be forgotten. This report outlines why nutritional status may be particularly compromised during this crisis, among both the population and hospital inpatients. Practical steps to improve nutritional status at a time when hospital services are overwhelmed are also considered. | Treatment for undernutrition may be a cost-effective method of improving outcomes of COVID-19 patients. | Mehta S. Nutritional status and COVID-19: an opportunity for lasting change? [published online, 2020 Apr 27]. Clin Med (Lond). 2020. doi:10.7861/clinmed.2020-0187 |

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| Infant, fever, neurologic manifestations, hypertonia, Spain | 27-Apr-20 | COVID-19: Fever Syndrome and Neurological Symptoms in a Neonate | Anales de Pediatría | Case Report | This case report describes a 26-day-old male who was brought to the emergency department (ED) after experiencing 2 paroxysmal episodes. The first episode manifested with upward eye rolling and generalized hypertonia lasting several minutes and associated with a feeding. The second episode manifested with generalized hypertonia and facial cyanosis lasting several minutes during sleep. On presentation to the ED, the infant had fever, nasal discharge, and vomiting. The infant was exclusively breastfed and had adequate weight. Given the presence of fever with neurologic manifestations, empirical antibiotic therapy was initiated until cultures yielded negative results. Blood, urine, cerebrospinal fluid and stool cultures were negative, and the stool was negative for RSV and influenza A and B viruses. The PCR test for SARS-CoV-2 detection was positive. The infant was discharged after 6 days, without evidence of convulsive seizures. Previous studies have demonstrated the neurotropic properties of coronaviruses, including in children <6 years old. However, the pathogenesis of febrile seizures is not directly related to the neuro-invasiveness of coronaviruses, so further research is required to understand their role in seizure etiology. | A COVID-19 positive infant initially presented with fever and neurologic manifestations. The neurotropic properties of SARS-CoV-2 virus warrant further attention and research. | Chacón-Aguilar R, Osorio-Cámara JM, Sanjurjo-Jimenez I, González-González C, López-Carnero J, Pérez-Moneo-Agapito B. COVID-19: Fever syndrome and neurological symptoms in a neonate [published online, 2020 Apr 27]. An Pediatr (Engl Ed). 2020. doi:10.1016/j.anpede.2020.04.001 |
| Age-related susceptibility, adaptive immunity, lymphocyte count, CD8 T cells | 27-Apr-20 | Additional Hypotheses About Why COVID-19 Is Milder in Children Than Adults | Acta Paediatrica | Letter | Authors present additional hypotheses in order to address lower incidence and milder clinical manifestation of COVID-19 in children. Aging is associated with a progressive decline in normal immune functioning, associated with natural involution of the thymus leading to decline in naive T cell output. Lower adaptive immunity is considered to be the leading cause of morbidity and mortality in the elderly. In particular, CD8 T cells appear to be more susceptible to age-related reduction. Low T lymphocyte count in patients with COVID-19, based on emerging data, suggest the role of immune dysregulation in the pathogenesis of disease. | This letter discusses progressive reduction in thymic output as a possible explanation for age-related susceptibility to COVID-19. | Ruggiero A, Attinà G, Chiaretti A. Additional hypotheses about why COVID-19 is milder in children than adults [published online, 2020 Apr 27]. Acta Paediatr. 2020. doi:10.1111/apa.15328 |
| Pregnancy, vertical transmission, respiratory RNA viruses, coronaviruses | 27-Apr-20 | Infections in Pregnancy with COVID-19 and Other Respiratory RNA Virus Diseases Are Rarely, If Ever, Transmitted to the Fetus: Experiences with Coronaviruses, HPIV, hMPV RSV, and Influenza | Archives of Pathology & Laboratory Medicine | Review | This report analyzes the effect of infection with respiratory RNA viruses on pregnancy and examines the frequency of maternal-fetal transmission with SARS-CoV-2, SARS, MERS, influenza, respiratory syncytial virus (RSV), parainfluenza (HPIV) and metapneumovirus (hMPV). There have been no confirmed cases of intrauterine transmission reported with COVID-19 or any other coronavirus infections. Influenza virus, despite causing approximately one billion annual infections globally, has only a few cases of confirmed or suspected intrauterine fetal infections reported. RSV is in an unusual cause of illness among pregnant women, and with the exception of one premature infant with congenital pneumonia, no other cases of maternal-fetal infection are described. HPIV and hMPV can produce symptomatic maternal infections but do not cause intrauterine fetal infection. In summary, it appears that the absence of maternal-fetal transmission of SARS-CoV-2, as reported thus far, is similar to other coronaviruses, and is also consistent with the extreme rarity of suggested or confirmed cases of intrauterine transmission of other respiratory RNA viruses. | Intrauterine transmission of SARS-CoV-2 has not been confirmed thus far. Similar to other respiratory RNA viruses, including coronaviruses like SARS and MERS, maternal-fetal transmission would be a rare event. | Schwartz DA, Dhaliwal A. Infections in Pregnancy with COVID-19 and Other Respiratory RNA Virus Diseases Are Rarely, If Ever, Transmitted to the Fetus: Experiences with Coronaviruses, HPIV, hMPV RSV, and Influenza [published online, 2020 Apr 27]. Arch Pathol Lab Med. 2020. doi:10.5858/arpa.2020-0211-SA |
| Pregnancy, vaginal delivery, neonatal infection, | 27-Apr-20 | Vaginal Delivery in SARS-CoV-2 Infected Pregnant Women in Northern Italy: A | BJOG: An International Journal of Obstetrics & Gynecology | Main Research Article | This retrospective study enrolled 42 pregnant women with COVID-19, who were admitted to 12 participating centers in northern Italy and delivered between March 1-20, 2020. Twenty-four (57.1%, 95% CI: 41.0-72.3) women delivered vaginally. An elective cesarean section was performed in 18/42 (42.9%, 95% CI: 27.7-59.0) cases—in 8 cases the indication was unrelated to | Findings from this study suggest that vaginal delivery is associated with low risk of intra-partum | Ferrazzi E, Frigerio L, Savasi V, et al. Vaginal delivery in SARS-CoV-2 infected pregnant women in Northern Italy: a retrospective analysis |

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| vertical transmission, breastfeeding, Italy | | Retrospective Analysis | | | COVID-19 infection. Pneumonia was diagnosed in 19/42 (45.2%, 95% CI: 29.8-61.3) cases. Of these, 7/19 (36.8%, 95% CI: 16.3-61.6) required oxygen support and 4/19 (21.1%, 95% CI: 6.1-45.6) were admitted to a critical care unit. In 10 cases, breastfeeding was permitted. Two women breastfed without a mask because COVID-19 was diagnosed in the post-partum period; their newborns tested positive for SARS-CoV-2 infection. In another case, a newborn was vaginally delivered and immediately separated from his mother, who developed severe postpartum hemorrhage. Within a few hours, the newborn developed gastrointestinal symptoms, and after three days he developed respiratory symptoms and was transferred to the NICU where he recovered after one day of mechanical ventilation. The first newborn test for SARS-CoV-2 was equivocal a few hours after delivery, but positive three days later. The mother did not breastfeed. No associated health care providers had a confirmed diagnosis of COVID-19 infection. No other positive SARS-CoV-2 test was found among the newborns. | SARS-CoV-2 transmission. Two neonates, born to mothers who were diagnosed with COVID-19 postpartum and did not wear masks while breastfeeding, tested positive for SARS-CoV-2. Other breastfed infants, whose mothers wore a mask, tested negative. | [published online, 2020 Apr 27]. BJOG. 2020. doi:10.1111/1471-0528.16278 |
| Pediatrics, neonates, fetal development, breastfeeding | 27-Apr-20 | Challenges for the Pediatricians During the Coronavirus Disease 2019 (COVID-19 Coronavirus Disease 2019) Pandemic Start From the Neonatal Period | The Pediatric Infectious Disease Journal | Letter to the Editor | Apart from the management of febrile children, pediatricians will also have to face challenges of SARS-CoV-2 infection during the neonatal period. The first priority is identifying the timing of infection (antenatally, perinatally or postnatally) and confirming its presence. In the potential case of a neonate infected in utero, the timing of infection may impact fetal development and possibly longer-term outcomes. It is unknown whether acquisition of COVID-19 during the first trimester of pregnancy is associated with birth defects, or whether fetal infection is more likely in advanced pregnancy stages, similar to other congenital infections. It is also uncertain whether two tests are enough to rule out neonatal infection, given that serology is not always reliable. Guidelines on separation of infected mother and neonate and feeding options are mixed. | This letter raises important areas of uncertainty, related to fetal and neonatal SARS-CoV-2 infection. | Gkentzi D, Karatza A, Dimitriou G. Challenges for the Pediatricians During the Coronavirus Disease 2019 (COVID-19 Coronavirus Disease 2019) Pandemic Start From the Neonatal Period [published online, 2020 Apr 27]. Pediatr Infect Dis J. 2020. doi:10.1097/INF.0000000000002713 |
| Nosocomial infection, healthcare workers, exposure-based risk classification, infection control measures, pediatric dialysis, Germany | 27-Apr-20 | First Reported Nosocomial Outbreak of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) in a Pediatric Dialysis Unit | Clinical Infectious Diseases | Major Article | Authors report a nosocomial outbreak of SARS-CoV-2 infections in the pediatric dialysis unit of the University Hospital of Münster (UHM) in Germany. Forty-eight cases (28 healthcare workers (HCWs), 13 patients with chronic kidney disease, and 7 accompanying persons (ACP)) were involved in this outbreak. After contact with the index case, 9 contact cases (7 HCWs, 1 patient, 1 ACP) developed real-time RT-PCR confirmed COVID-19 infections. Two SARS-CoV-2 positive cases remained clinically asymptomatic. Eleven cases reported flu-like symptoms without positive results. Threshold cycle values were significantly lower in cases presenting typical COVID-19 symptoms, compared to asymptomatic cases, suggesting high viral shedding (p =0.007). Person-to-person transmission was at the heart of a hospital outbreak of SARS-CoV-2 between HCWs and patients in the pediatric dialysis unit at the UHM. RT-PCR results suggest that individuals with high viral load pose a risk to spread SARS-CoV-2 in the hospital setting. | A nosocomial outbreak of COVID-19 at a pediatric dialysis in Germany was largely due to transmission between patients and healthcare workers (HCWs). Strategies must be developed to trace and monitor SARS-CoV-2 infected HCWs, in order to prevent COVID-19 outbreaks in the hospital setting. | Schwierzeck V, König JC, Kühn J, et al. First reported nosocomial outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in a pediatric dialysis unit [published online, 2020 Apr 27]. Clin Infect Dis. 2020. doi:10.1093/cid/ciaa491 |

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| Pregnancy, lung ultrasound, point-of-care ultrasound, neonates, Italy | 26-Apr-20 | Clinical Role of Lung Ultrasound for the Diagnosis and Monitoring of COVID-19 Pneumonia in Pregnant Women | Ultrasound Obstetrics & Gynecology | Case Series | Although chest CT is the current gold standard to assess lung involvement, with a specificity superior to the nasopharyngeal swab for diagnosis, lung ultrasound (LUS) can be a valid alternative, with some particular advantages for pregnant women. Indeed, LUS can be performed directly at bedside by a single operator, reducing the risk of person-to-person transmission among health professionals, and is a radiation-free exam, which is favored for serial exams. In the present study, authors report four cases of pregnant women, with COVID-19 infection, who have been monitored via LUS. Patients showed LUS features indicative of COVID-19 pneumonia at admission: irregular pleural lines and vertical artifacts (B-lines) were observed in all four cases, whereas patchy areas of white lung were observed in two cases. LUS was more sensitive than chest X-ray in detecting COVID-19. Three patients had resolution of lung pathology on LUS, 96 hours after admission. Two pregnancies are ongoing, and two patients had cesarean delivery with no fetal complications. PCR testing of cord blood and newborn nasopharyngeal swabs were negative in both cases. | Lung ultrasound is a useful tool to assess and monitor lung involvement in pregnant patients with COVID-19. | Buonsenso D, Raffaelli F, Tamburrini E, et al. Clinical role of lung ultrasound for the diagnosis and monitoring of COVID-19 pneumonia in pregnant women [published online, 2020 Apr 26]. Ultrasound Obstet Gynecol. 2020. doi:10.1002/uog.22055 |
| Children, immunization, BCG vaccine, seroconversion, India | 26-Apr-20 | Coronavirus Disease (COVID-19) With Relevance to Pediatrics | Indian Pediatrics | Correspondence | Authors highlight possible explanations for the lower prevalence of COVID-19 in India. In particular, the protective effect of BCG vaccination must be considered in countries where almost universal BCG vaccination is practiced and fewer COVID-19 cases have been reported. It is well-known that seroconversion to oral polio vaccine (OPV) and rotavirus vaccine has been poor in India, compared to the developed world. Frequent viral infections that likely prevent a new virus from getting a "foothold," early immunizations, and exposure to both atypical and typical bacterial and fungal infections may expose children in India to various antigens, contributing to effective immune defense. | Exposure to various pathogens and early immunizations in India may contribute to greater immune defense in Indian children, possibly explaining lower rates of SARS-CoV-2 infection. | Unni JC. Coronavirus Disease (COVID-19) With Relevance to Pediatrics [published online, 2020 Apr 26]. Indian Pediatr. 2020;S097475591600164. |
| Children, neonates, breastfeeding, India | 26-Apr-20 | Do Not Neglect the Children: Considerations for COVID-19 Pandemic | Indian Pediatrics | Correspondence | This brief correspondence provides an overview of various issues concerning children during the COVID-19 pandemic. These include clinical course of disease, reasons behind lower prevalence of COVID-19 among children compared to adults, asymptomatic transmission, breast feeding, and the effects of lockdown on children's mental and physical health. | This correspondence from Indian authors promotes indirect breastfeeding for COVID-19 positive mothers. | Naseri A, Hosseini MS. Do Not Neglect the Children: Considerations for COVID-19 Pandemic [published online, 2020 Apr 26]. Indian Pediatr. 2020;S097475591600165. |
| Child, infant, neonate, crying, screaming, aerosol generating procedure, transmission | 26-Apr-20 | Does a Crying Child Enhance the Risk for COVID-19 Transmission? | Indian Pediatrics | Correspondence | Aerosol is defined as suspension of fine solid particles or liquid droplets in air or another gas. Aerosols of varying severity are generated by sneezing, coughing, talking, and during normal breathing. Crying or screaming in children is another potential aerosol generating procedure. Related points to consider: infants and toddlers who arrive for routine vaccinations can be asymptomatic or pre-symptomatic; implementing source control measures are difficult in this age group; crying may increase the risk of aerosol generation; and young children are often in close proximity to caregivers. | Screaming and crying in young infants with COVID-19 may increase the risk of aerosol load and transmission. | Sivabalan S, Srinath MV. Does a Crying Child Enhance the Risk for COVID-19 Transmission? [published online, 2020 Apr 26]. Indian Pediatr. 2020;S097475591600166. |

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| Children, epidemiology, physiology, judiciary system, India | 26-Apr-20 | Coronavirus Disease (COVID-19) in Children: Indian Perspectives | Indian Pediatrics | Correspondence | From the point of epidemiology, there is under-sampling and under-reporting of COVID-19 in children due to under-testing. From a physiological perspective, a higher frequency of beating lung cilia in children hinders viral entry into lung pneumocytes and may explain an uneventful clinical course of COVID-19 in children. Decreased thrombin and fibrin formation, less comorbidities, and increased ACE2 expression in pediatric lungs may further explain low risk for COVID-19 associated ARDS. Recently, the Indian judiciary has shifted attention towards the care of marginalized children, including those in foster and kinship care, during the pandemic. | Authors comment on the epidemiology and clinical course of COVID-19 in children, as well as recent contributions of the Indian judiciary to the health of children during the pandemic. | Senthilkumaran S, Meenakshisundaram R, Shah S, Thirumalaikolundus-ubramanian P. Coronavirus Disease in Children: Indian Perspectives [published online, 2020 Apr 26]. Indian Pediatr. 2020;S097475591600167. |
| Children, clinical characteristics, chest CT abnormalities, China | 24-Apr-20 | Clinical Features of Pediatric Patients With Coronavirus Disease (COVID-19) | Journal of Clinical Virology | Original Article | This retrospective analysis included 16 children (11 months-14 years) diagnosed with COVID-19 between January 1, 2020 and March 17, 2020 at Xiangyang Central Hospital, Hubei province, China. All children had positive epidemiologic histories, 12 (12/16, 75%) involving family units. The illnesses were either mild (5/16, 31.3%) or ordinary (11/16, 68.8%), presenting as follows: asymptomatic (8/16, 50%), fever and/or cough (8/16, 50%). Leukocyte counts were normal in 14 cases (88%), but 2 patients (12.5%) had leukopenia, and 1 (6.3%) was lymphopenic. Four asymptomatic patients in ordinary cases had chest CT abnormalities. In asymptomatic children, the median time to SARS-CoV-2 nucleic acid test (NAT) positivity, once exposed to a family member with confirmed infection, was 15.5 days (range, 10-26 days). The median time to first NAT-negative conversion was 5.5 days (range 1-23 days). | Children with confirmed COVID-19 in Xiangyang city, China often acquired infection from family members and experienced mild disease with good prognosis. Chest CT abnormalities were noted in 4/8 asymptomatic children. | Song W, Li J, Zou N, Guan W, Pan J, Xu W. Clinical features of pediatric patients with coronavirus disease (COVID-19) [published online, 2020 Apr 24]. J Clin Virol. 2020. doi:10.1016/j.jcv.2020.104377 |
| Children, acral lesions, cutaneous manifestations, Italy | 24-Apr-20 | Acral Cutaneous Lesions in the Time of COVID-19 | Journal of the European Academy of Dermatology and Venereology | Letter to Editor | Authors report on peculiar (perniosis-like) skin lesions observed in young outpatients who visited the Dermatologic Unit of an Italian hospital, in the last 4 weeks of the COVID-19 pandemic (March-April 2020). Fourteen cases, including 11 children (average: 14.4 years, range: 13-18) and 3 young adults (average: 29 years, range: 23-39) were observed in this case series. The cutaneous manifestations consisted of an acral eruption of erythemato-violaceous papules and macules, with possible bullous evolution, or digital swelling. Lesions were localized on the feet in 8 cases, on the hands in 4 cases, on both sites in 2. No systemic symptoms were reported, except mild itch in 3 cases. Lesions resolved after 2-4 weeks without treatment. Both nasopharyngeal (3 patients) and rectal swabs (2 patients) for COVID-19 yielded negative results. Nevertheless, authors argue that the clustering of unusual lesions and their temporal relationship with the COVID-19 pandemic strongly support the hypothesis that skin involvement may be a late manifestation of COVID-19. | In Italy, perniotic skin lesions were observed in a series of young outpatients, during the COVID-19 pandemic between March-April 2020. These lesions may represent late manifestations of COVID-19 in asymptomatic individuals. | Recalcati S, Barbagallo T, Frasin LA, et al. Acral cutaneous lesions in the Time of COVID-19 [published online, 2020 Apr 24]. J Eur Acad Dermatol Venereol. 2020. doi:10.1111/jdv.16533 |
| Children, young adults, cutaneous lesions, chilblain, Spain | 24-Apr-20 | Chilblain-like Lesions on Feet and Hands During the COVID-19 Pandemic | International Journal of Dermatology | Commentary | A series of dermatological findings associated with SARS-CoV-2 infection have emerged in Spain. Most patients are children (median: 13 years) and young adults (median: 31, range: 18-91 years). The lesions are initially erythematous and papular, resembling chilblains. Subsequently, in the span of 1 week, they become purpuric and flattened. Finally, they appear to resolve on their own, without requiring treatment. Patients do not show signs of Raynaud's disease or ischemia. Although there is some referred discomfort or pain when palpated, the skin lesions are not very symptomatic. The majority of patients do not present with COVID-19 symptoms or significant respiratory conditions. In a case series of 6 patients | Dermatologists in Spain have noted an emergence of chilblain-like lesions, primarily in children and young adults; their association with SARS-CoV-2 infection remains to be confirmed. | Landa N, Mendieta-Eckert M, Fonda-Pascual P, Aguirre T. Chilblain-like lesions on feet and hands during the COVID-19 Pandemic [published online, 2020 Apr 24]. Int J Dermatol. 2020. doi:10.1111/ijd.14937 |

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| | | | | | with cutaneous lesions reported in this commentary, 2 tested positive for SARS-CoV-2 infection by RT-PCR. In 3 patients, COVID-19 testing was not performed, and 1 patient tested negative. Confirmatory testing is required to corroborate the association of these chilblain-like lesions with COVID-19. | | |
| Children, adolescents, cutaneous lesions, chilblain, Italy | 24-Apr-20 | Chilblain-like lesions during COVID-19 epidemic: a preliminary study on 63 patients | Journal of the European Academy of Dermatology and Venereology | Letter to Editor | Authors noticed an outbreak of chilblain-like lesions in Italy contemporarily to COVID-19 epidemic. A Google form was created to rapidly collect information about patients presenting with these singular clinical findings. Preliminary results from 63 patients are presented in this report. The median age was 14 years (IQR: 12-16 years). Feet alone were mostly affected (85.7%) followed by feet/hands together (7%) and hands alone (6%). 31/54 presented with erythematous-edematous lesions and 23/54 with blistering lesions. Pain and itch were equally observed. Median time from the onset to clinical diagnosis was 10 days (IQR: 6-15 days). Information about COVID-19 status was available in a minority of cases: 2/63 patients had positive swabs and serology. While primary chilblains are notoriously due to exposure to low temperature, secondary chilblains could be associated with several diseases, such as autoimmune disorders (chilblain lupus), hematologic disorders, and rarely viral infections. | A pattern of chilblain-like, cutaneous lesions in otherwise healthy adolescents were observed in the midst of the COVID-19 pandemic in Italy. | Piccolo V, Neri I, Filippeschi C, et al. Chilblain-like lesions during COVID-19 epidemic: a preliminary study on 63 patients [published online, 2020 Apr 24]. J Eur Acad Dermatol Venereol. 2020. doi:10.1111/jdv.16526 |
| Pregnancy, exclusion criteria, clinical trial, therapeutics, vaccine development | 24-Apr-20 | Protection by Exclusion: Another Missed Opportunity to Include Pregnant Women in Research During the Coronavirus Disease 2019 (COVID-19) Pandemic | Obstetrics & Gynecology | Commentary | Governmental institutions and pharmaceutical companies are racing to find therapeutics and vaccines that target COVID-19. However, pregnant and breastfeeding women are excluded from participating in clinical trials during this pandemic. This "protection by exclusion" of pregnant women from drug development and clinical therapeutic trials, even during pandemics, is not unprecedented. Moreover, it is both misguided and not justifiable and may have excluded them from potentially beneficial interventions. This is another missed opportunity to obtain pregnancy-specific safety and efficacy data, because therapeutics developed for men and nonpregnant women may not be generalizable to pregnant women. Therefore, authors recommend and urge the scientific community and professional societies that, without clear justification for exclusion, pregnant women should be given the opportunity to be included in clinical trials for COVID-19 based on the concepts of justice, equity, autonomy, and informed consent. | Without clear justification for exclusion, clinical trials to develop therapeutics and vaccines against COVID-19 should include pregnant women. | Costantine MM, Landon MB, Saade GR. Protection by Exclusion: Another Missed Opportunity to Include Pregnant Women in Research During the Coronavirus Disease 2019 (COVID-19) Pandemic [published online, 2020 Apr 24]. Obstet Gynecol. 2020. doi:10.1097/AOG.0000000000003924 |
| Pregnancy, perinatal period, neonatal resuscitation | 24-Apr-20 | Neonatal Resuscitation Where the Mother Has a Suspected or Confirmed Novel Coronavirus (SARS-CoV-2) Infection: Suggestion for a Pragmatic Action Plan | Neonatology | Review | Controversy exists whether COVID-19 can be transmitted in utero and lead to disease in the newborn. As this chance cannot be ruled out, strict instructions for the management of mothers and newborn infants are mandatory. This perspective aims to be a practical support tool for the planning of delivery and neonatal resuscitation of infants born by mothers with suspected or confirmed COVID-19 infection. | This report presents a checklist on management of mothers with suspected or confirmed COVID-19 and their infants before, during, and after delivery. | Trevisanuto D, Moschino L, Doglioni N, et al. Neonatal Resuscitation Where the Mother Has a Suspected or Confirmed Novel Coronavirus (SARS-CoV-2) Infection [published online, 2020 Apr 24]. Neonatology. 2020;1–8. doi:10.1159/000507935 |

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| Pregnancy, neonate, vertical transmission, amniotic fluid samples, China | 24-Apr-20 | Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Vertical Transmission in Neonates Born to Mothers With Coronavirus Disease 2019 Pneumonia | Obstetrics & Gynecology | Research Letter | Authors report seven cases of confirmed COVID-19 during late pregnancy and neonatal outcomes, observed from January 20 to February 20, 2020. Prior to COVID-19 diagnosis, six of the pregnancies had been uneventful, and one had presented with liver dysfunction. No mother experienced clinical deterioration, and there were no delivery-related complications. Amniotic fluid samples were obtained at delivery and were negative by PCR testing. Cesarean delivery was performed for all but one woman, who delivered vaginally. All neonates were tested within the first 24-36 hours of life, and one (14.3%) was positive for SARS-CoV-2 infection in throat swabs. The neonates were isolated for 14 days and exclusively formula-fed. | 1 out of 7 neonates, born to mothers with confirmed COVID-19 in late pregnancy, tested positive for SARS-CoV-2 infection in throat swabs, suggesting the potential for vertical transmission, although infrequent. | Hu X, Gao J, Luo X, et al. Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Vertical Transmission in Neonates Born to Mothers With Coronavirus Disease 2019 (COVID-19) Pneumonia [published online, 2020 Apr 24]. Obstet Gynecol. 2020. doi:10.1097/AOG.0000000000003926 |
| Child, conjunctivitis, dermatitis, conjunctival samples, ACE2 receptor, China | 24-Apr-20 | A Child Confirmed COVID-19 With Only Symptoms of Conjunctivitis and Eyelid Dermatitis | Graefe's Archive for Clinical and Experimental Ophthal-mology | Letter to the Editor | Conjunctivitis symptoms have been found in a minority of adult patients, with positive results of SARS-CoV-2 nucleic acid in conjunctival swab samples. This letter describes the first report of conjunctivitis and eyelid dermatitis in a 2-year-old child, 7 days after confirming COVID-19 infection through community screening with SARS-CoV-2 detected in nasopharyngeal swabs. It is not specified whether conjunctival samples from the child were tested. Studies have shown that ACE2 receptors are expressed in cornea and conjunctiva, thus the ocular symptoms in this child could have been caused by SARS-CoV-2 viral infection or by secondary bacterial infection. | SARS-CoV-2 infection of ocular tissues has been linked to conjunctivitis symptoms in adults with COVID-19. This study describes ocular symptoms in a child with COVID-19, but conjunctival samples were not tested. | Wu P, Liang L, Chen C, Nie S. A child confirmed COVID-19 with only symptoms of conjunctivitis and eyelid dermatitis [published online, 2020 Apr 24]. Graefes Arch Clin Exp Ophthalmol. 2020. doi:10.1007/s00417-020-04708-6 |
| Children, diagnosis, treatment, prevention, China | 24-Apr-20 | Updated diagnosis, treatment and prevention of COVID-19 in children: experts' consensus statement (condensed version of the second edition). | World Journal of Pediatrics | Review Article | In the early February 2020, an experts' committee with more than 30 Chinese experts from 11 national medical academic organizations was convened to formulate the first edition of consensus statement on diagnosis, treatment and prevention of COVID-19 in children. With accumulated experiences in the diagnosis and treatment of COVID-19 in children, authors have updated the consensus statement and released the second edition (the current version in English is a condensed version). Diagnosis and treatment criteria have been optimized, and early identification of severe and critical cases is highlighted. The early warning indicators for severe pediatric cases have also been summarized. | This is the second edition of a consensus statement on the diagnosis, treatment and prevention of COVID-19 in children, from over 30 Chinese experts. | Shen KL, Yang YH, Jiang RM, et al. Updated diagnosis, treatment and prevention of COVID-19 in children: experts' consensus statement (condensed version of the second edition) [published online, 2020 Apr 24]. World J Pediatr. 2020. doi:10.1007/s12519-020-00362-4 |
| Febrile illness, malaria, dengue fever, community health workers, Asia-Pacific region | 24-Apr-20 | Diagnosing malaria and other febrile illnesses during the COVID-19 pandemic | The Lancet Global Health | Comment | While the Asia-Pacific region has made substantial progress against malaria, with a 42% reduction in confirmed cases between 2010 and 2018, the emergence of COVID-19 could undermine elimination efforts. Diagnosis of fever in the Asia-Pacific region has always been a challenge due to the prevalence of many febrile diseases, including malaria and dengue fever, now further complicated by the addition of COVID-19. Initial diagnosis of febrile disease in this region is commonly done by frontline community health-care workers, but physical distancing measures are making it difficult to access patients with fever. WHO has clearly stated that ongoing malaria interventions must continue to ensure that elimination gains are not jeopardized. Adapted health-care packages that include pragmatic advice on PPE options, training on the use of triage tests such as respiratory rate measurements, and digital tools to support data collection and contact | The COVID-19 pandemic jeopardizes recent progress made toward malaria elimination in the Asia-Pacific region. Frontline community health workers must be supported to make discriminative diagnoses between COVID-19 and other febrile illnesses that | Dittrich S, Lamy M, Acharya S, Thu HK, Datta R, Blacksell SD. Diagnosing malaria and other febrile illnesses during the COVID-19 pandemic [published online, 2020 Apr 24]. Lancet Glob Health. doi:10.1016/S2214-109X(20)30210-2 |

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| | | | | | tracing could support health-care workers in their short-term tasks, as well as build the foundation for more integrated fever management in the future. Existing clinical decision algorithms could also be adapted to consider local epidemiology, seasonal prevalence and severity of various febrile diseases, and relative accuracy of the available diagnostic tools. | are prevalent in the region. | |
| BCG vaccination, innate immunity, country-level, hemisphere | 24-Apr-20 | Is BCG Vaccination Effecting the Spread and Severity of COVID-19? | Allergy | Letter to the Editor | The influence of infectious stimuli on the development of allergic disorders has been well investigated. In many countries, Bacillus Calmette Guerin (BCG), a live attenuated vaccine, is administered routinely in the newborn period. Mycobacteria are previously reported to be potent Th1 stimulants, skewing an immune response toward a Th1 cytokine pattern. It is claimed that BCG vaccination plays a non-specific protective role, through innate immune cells, against non-related pathogens like viruses. This report found that mean COVID-19 cases per population ratio, mean COVID-19 deaths per population ratio, and COVID-19 deaths per cases ratio were statistically significantly lower in BCG-vaccinated countries (n=138) compared with BCG-non-vaccinated countries (n=37). Analyses were also performed between BCG-vaccinated and non-BCG-vaccinated countries, within hemispheres and within European countries only. | This speculative report considers the relationship between BCG vaccination, shown to have a non-specific immune protective role, and COVID-19 cases and deaths, on a country level. | Ozdemir C, Kucuksezer UC, Tamay ZU. Is BCG vaccination effecting the spread and severity of COVID-19? [published online, 2020 Apr 24]. Allergy. 2020. doi:10.1111/all.14344 |
| Children, infants, immune response, epidemiology | 24-Apr-20 | SARS-CoV-2 Infection in Children - Understanding the Immune Responses and Controlling the Pandemic | Pediatric Allergy and Immunology | Review Article | As the number of children with COVID-19 gradually increases, the disease has been documented in premature babies, infants, children and adolescents. Severe and fatal cases in children are relatively rare. The burden of disease in children has been relatively low, but the high proportions of asymptomatic or mildly symptomatic infections in children deserve careful attention. This review outlines current understanding of the pathogenicity of SARS-CoV-2 infection and immune responses in children. | This review describes clinical features, epidemiology, and immune responses of children with SARS-CoV-2 infection. | Lu X, Xiang Y, Du H, Wing-Kin Wong G. SARS-CoV-2 infection in children - Understanding the immune responses and controlling the pandemic [published online, 2020 Apr 24]. Pediatr Allergy Immunol. 2020. doi:10.1111/pai.13267 |
| Medical nutrition therapy, micronutrient intake, immuno-nutrients | 24-Apr-20 | Short Report - Medical Nutrition Therapy for Critically Ill Patients With COVID-19 | European Review for Medical and Pharmacological Sciences | Short Report | Medical nutrition therapy is one of the core contents of comprehensive treatment measures for patients with COVID-19. This report presents a set of guidelines for nutritional medical therapy for critically ill COVID-19 patients, based on international guidelines. Recommendations for micronutrient intake, immuno-nutrients, probiotics and polyphenol supplementation are included. | This report presents guidelines for nutritional medical therapy for critically ill COVID-19 patients. | Romano L, Bilotta F, Dauri M, et al. Short Report - Medical nutrition therapy for critically ill patients with COVID-19. Eur Rev Med Pharmacol Sci. 2020;24(7):4035–4039. doi:10.26355/eurrev_202004_20874 |
| Pregnancy, childbirth, maternal and neonatal outcomes | 24-Apr-20 | A Systematic Scoping Review of COVID-19 During Pregnancy and Childbirth | International Journal of Gynecology & Obstetrics | Review Article | This systematic search of electronic databases identified 33 studies reporting 385 pregnant women with COVID-19 infection: 368 (95.6%) mild; 14 (3.6%) severe; and 3 (0.8%) critical. Seventeen women were admitted to intensive care, including six who were mechanically ventilated and one maternal mortality. A total of 252 women gave birth, comprising 175 (69.4%) cesarean and 77 (30.6%) vaginal births. Outcomes for 256 newborns included four RT-PCR positive neonates, two stillbirths, and one neonatal death. Authors conclude that SARS-CoV-2 infection during pregnancy has a clinical presentation and severity resembling that in non-pregnant adults. Based on findings, COVID-19 is probably not associated with poor maternal or perinatal outcomes. | This systematic review of COVID-19 infection during pregnancy and childbirth found little evidence for poor maternal or neonatal outcomes. | Elshafeey F, Magdi R, Hindi N, et al. A systematic scoping review of COVID-19 during pregnancy and childbirth [published online, 2020 Apr 24]. Int J Gynaecol Obstet. 2020. doi:10.1002/ijgo.13182 |

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| Micronutrient supplementation, vitamins, minerals, omega-3 fatty acids, viral infection, immune system | 23-Apr-20 | Optimal Nutritional Status for a Well-Functioning Immune System Is an Important Factor to Protect Against Viral Infections | Nutrients | Review | A wealth of mechanistic and clinical data show that vitamins, including vitamins A, B6, B12, C, D, E, and folate; trace elements, including zinc, iron, selenium, magnesium, and copper; and the omega-3 fatty acids, eicosapentaenoic acid and docosahexaenoic acid, play important and complementary roles in supporting the immune system. Inadequate intake of these nutrients is widespread, leading to decreased resistance to infections and increased disease burden. Supplementation with the above micronutrients and omega-3 fatty acids is a safe, effective, and low-cost strategy to help support optimal immune function; public health officials are encouraged to include nutritional strategies in their recommendations to improve public health. | This review states that based on well-established evidence of the immune-supportive role that nutrition plays, supplementation with micronutrients is a safe and cost-effective public health strategy to protect against viral infection. | Calder PC, Carr AC, Gombart AF, Eggersdorfer M. Optimal Nutritional Status for a Well-Functioning Immune System Is an Important Factor to Protect against Viral Infections. Nutrients. 2020;12(4):E1181. Published 2020 Apr 23. doi:10.3390/nu12041181 |
| Pregnancy, neonates, clinical characteristics, preterm birth, vertical transmission, amniotic fluid, cord blood samples, China | 23-Apr-20 | Coronavirus Disease 2019 (COVID-19) in Pregnant Women: A Report Based on 116 Cases | American Journal of Obstetrics and Gynecology | Case Series | Clinical records were retrospectively reviewed for 116 pregnant women with COVID-19 pneumonia from 25 hospitals in China between January 20 and March 24, 2020. The median gestational age on admission was 38+0 (IQR: 36+0 -- 39+1) weeks. The most common symptoms were fever (50.9%, 59/116) and cough (28.4%, 33/116); 23.3% (27/116) patients presented without symptoms. Abnormal radiologic findings were found in 96.3% (104/108) of cases. There were eight cases (6.9%, 8/116) of severe pneumonia but no maternal deaths. One of eight patients (1/8) that presented in the first- and early-second trimester had a missed spontaneous abortion. 85.9% (85/99) underwent Cesarean delivery and 14.1% (14/99) had a vaginal delivery. For 38.8% (33/85) of those who underwent Cesarean delivery, the indication was COVID-19 pneumonia. Twenty-one of 99 patients (21.2%, 21/99) that had delivered had preterm birth, including six with preterm premature ruptured of membranes. The rate of spontaneous preterm birth before 37 weeks was 6.1% (6/99). There was one case of severe neonatal asphyxia that resulted in neonatal death. Eighty-six of the 100 neonates were tested for SARS-CoV-2; all had negative results. Of these, ten neonates had paired amniotic fluid and cord blood samples that were tested negative for SARS-CoV-2. Six mothers had their vaginal secretion samples tested and were negative. Twelve mothers had their breast milk samples tested and were negative. | Based on this report of 116 cases of pregnant women with COVID-19 in China, SARS-CoV-2 infection during pregnancy was not associated with increased risk of spontaneous abortion and preterm birth. There was no evidence of vertical transmission of SARS-CoV-2 infection during late pregnancy. | Yan J, Guo J, Fan C, et al. Coronavirus disease 2019 (COVID-19) in pregnant women: A report based on 116 cases [published online, 2020 Apr 23]. Am J Obstet Gynecol. 2020. doi:10.1016/j.ajog.2020.04.014 |
| Children, family clusters, viral shedding period, China | 23-Apr-20 | Clinical and Epidemiological Features of COVID-19 Family Clusters in Beijing, China | Journal of Infection | Case Series | In Beijing, family clusters are the main mode of human-human transmission, accounting for 57.6% of the total confirmed cases. This series presents clusters of one small and three large families, in which a total of 22/24 infections were observed, through contact with an index case. Among those infected, 20/22 had mild symptoms and only two had moderate to severe clinical manifestations. Eight children were included in this study (range: 9 months - 10 years old), and all but one tested positive for SARS-CoV-2 on RT-PCR. Children with positive RT-PCR results generally showed milder symptoms and became negative after 5-17 days, whereas RT-PCR results for adults remained positive much longer. | SARS-CoV-2 was transmitted quickly in four reported family clusters from Beijing. While the infection rate was high, the viral shedding period varied between infected adults and children within family clusters. | Song R, Han B, Song M, et al. Clinical and epidemiological features of COVID-19 family clusters in Beijing, China [published online, 2020 Apr 23]. J Infect. 2020. doi:10.1016/j.jinf.2020.04.018 |

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| Children, adults, immuno-suppression, cancer, liver transplantation, immune response | 23-Apr-20 | How Is Immunosuppressive Status Affecting Children and Adults in SARS-CoV-2 Infection? A Systematic Review | Journal of Infection | Review | A systematic review of literature identified 16 relevant articles, with 110 immunosuppressed adults and children with COVID-19. Of 98 patients receiving cancer treatment, one child had leukemia. In addition, three children who underwent liver transplantation are included. Cancer was more often associated with a more severe course, but not necessarily with a bad prognosis. Data show that both children and adults with immunosuppression seem to have a favorable disease course, as compared to the general population. | Immunosuppressed adult and pediatric patients with COVID-19 seem to experience favorable outcomes, compared to other comorbidities, possibly explained by a protective, weaker immune response. | Minotti C, Tirelli F, Barbieri E, Giaquinto C, Donà D. How is immunosuppressive status affecting children and adults in SARS-CoV-2 infection? A systematic review [published online, 2020 Apr 23]. J Infect. 2020. doi:10.1016/j.jinf.2020.04.026 |
| Pregnancy, neonates, cesarean delivery, vertical transmission, China | 23-Apr-20 | Clinical Analysis of Ten Pregnant Women With COVID-19 in Wuhan, China: A Retrospective Study | International Journal of Infectious Diseases | Original Research | The clinical features and outcomes of 10 pregnant women, with confirmed COVID-19 at Maternal and Child Health Hospital of Hubei Province, from January 23 to February 23, 2020 were retrospectively analyzed. All 10 pregnant women, including 9 singletons and 1 set of twins, were residents of Wuhan. None developed severe COVID-19 or died. Two patients underwent vaginal delivery, two patients underwent intrapartum cesarean section, and the remaining six patients underwent elective cesarean section. After delivery, all women showed lung abnormalities by pulmonary CT imaging. Of 11 neonates, 5 underwent SARS-CoV-2 testing of throat swabs, which were found to be negative. Among all neonates, no neonatal death or asphyxia was observed. | Of 11 neonates born to 10 pregnant women with confirmed COVID-19 in Wuhan, China, 5 were tested for SARS-CoV-2 nucleic acid in throat swabs. All tested negative. This study does not support the possibility of vertical transmission. | Cao D, Yin H, Chen J, et al. Clinical analysis of ten pregnant women with COVID-19 in Wuhan, China: A retrospective study [published online, 2020 Apr 23]. Int J Infect Dis. 2020. doi:10.1016/j.ijid.2020.04.047 |
| Neurologic event, infant, co-infection, rhinovirus | 23-Apr-20 | Neurologic Manifestations in an Infant With COVID-19 | Neurology | Clinical/Scientific Notes | This case report describes a 6-week-old (born at 39 weeks via uncomplicated spontaneous vaginal delivery), who presented with fever, cough, and two brief 10-15 second episodes of upward gaze and bilateral leg stiffening. On exam after arrival at the emergency room, the anterior fontanel was soft and non-bulging, and the neurologic exam was unremarkable. Respiratory pathogen PCR panel was positive for rhinovirus/enterovirus. SARS-CoV-2 rRT-PCR was also positive on nasopharyngeal swab, but viral RNA was not detected in CSF, serum, or plasma. EEG results did not confirm initial suspicion for seizures. The patient was discharged home one day after admission without further fevers or events. | This case report introduces the possibility of rare neurologic manifestations of COVID-19 (and co-infection with rhinovirus) in children. | Dugue R, Cay-Martínez KC, Thakur K, et al. Neurologic manifestations in an infant with COVID-19 [published online, 2020 Apr 23]. Neurology. 2020. doi:10.1212/WNL.0000000000009653 |
| Pregnancy, neonate, obstetric unit, breastfeeding, India | 23-Apr-20 | Management of the First Patient With Confirmed COVID-19 in Pregnancy in India: From Guidelines to Frontlines | International Journal of Gynecology & Obstetrics | Brief Communication | Data are emerging on the consequences of the infection on mothers and infants. Many guidelines on pregnancy management during the pandemic have been released, but the actual journey to establishing an obstetric isolation unit can be challenging. The present article describes the stepwise informed approach that was taken to rapidly establish a unit for suspected COVID-19 patients within existing resources, and the experience of delivering the first pregnant patient with asymptomatic, confirmed COVID-19 in India. A healthy male neonate was delivered by cesarean section, was breastfed, and tested negative for COVID-19 on day seven. | An OB/GYN department in India describes the process of establishing an obstetric isolation unit, where an asymptomatic pregnant woman with COVID-19 delivered a healthy neonate, who was breastfed and tested negative for COVID-19. | Sharma KA, Kumari R, Kachhawa G, et al. Management of the first patient with confirmed COVID-19 in pregnancy in India: From guidelines to frontlines [published online, 2020 Apr 23]. Int J Gynaecol Obstet. 2020. doi:10.1002/ijgo.13179 |

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| Human milk bank, breastfeeding, sanitization, Rome, Italy | 23-Apr-20 | Use of Disinfectant Wipes to Sanitize Milk's Containers of Human Milk Bank During COVID-19 Pandemic | Journal of Human Lactation | Original Article | This paper reports experience from the Human Milk Bank (HMB) of a children's hospital in Rome, Italy. Donors express milk via mechanical pumps and store milk in sterile single-use plastic containers supplied by the HMB. While milk donation was practically suspended in other Italian cities, drivers at this HMB continue to collect expressed human milk (EHM) directly from donors, once a week. Milk is frozen, then defrosted and pasteurized before use. Breastfeeding information is provided to the mothers via telephone consultation available 8 hours a day. It is recommended that donor mothers suspend donation and be promptly tested if any SARS-CoV-2 symptoms occur; however, SARS-CoV-2 could contaminate the outside of the container, since this virus can be detected for up to 72 hours on plastic and various surfaces. Therefore, the HMB has begun to sanitize EHM containers using disinfectant wipes and gloved hands, which is both feasible and sustainable. | A human milk bank from Rome, Italy reports experiences adapting to the COVID-19 era, through less frequent donated milk collection and sanitization of containers. | Rose DU, Reposi MP, Amadio P, et al. Use of Disinfectant Wipes to Sanitize Milk's Containers of Human Milk Bank During COVID-19 Pandemic [published online, 2020 Apr 23]. J Hum Lact. 2020. doi:10.1177/0890334420924639 |
| Children, cancer, immuno-suppressive chemotherapy, immune dysfunction | 23-Apr-20 | Covid-19 and Children With Cancer: Are They at Increased Risk of Infection? | Pediatric Research | Correspondence | Children with cancer receiving immunosuppressive chemotherapy have typically significant quantitative and qualitative abnormalities in T-cell function and immunoglobulin levels. Even after completion of chemotherapy, immune dysfunction may persist for several months. Authors performed a literature search on COVID-19 infection in children with cancer and found only one manuscript that could not be obtained through the PubMed platform. | There is a paucity in literature on the clinical and epidemiological characteristics of COVID-19 infection in children with cancer. | Ruggiero A, Romano A, Attinà G. Covid-19 and children with cancer: are they at increased risk of infection? [published online, 2020 Apr 23]. Pediatr Res. 2020. doi:10.1038/s41390-020-0919-1 |
| Severe acute respiratory illness, children, hospitalization, epidemiology, Brazil | 22-Apr-20 | COVID-19 and Hospitalizations for SARI in Brazil: A Comparison Up to the 12th Epidemiological Week of 2020 | Cadernos de Saúde Pública | Brief Communication | Surveillance of hospitalized cases and deaths due to severe acute respiratory illness (SARI) in Brazil has expanded to include COVID-19. Between the 9th and 12th epidemiological weeks of 2020, hospitalizations for SARI exceeded the numbers observed during the same period in each of the previous 10 years. In 2019, more than half of SARI cases occurred in children under two years of age, and the most frequently detected virus was RSV (23.3%). In contrast, the number of cases of children affected by SARI has decreased in 2020, while the age bracket over 60 years has been the most heavily affected. The inclusion of SARS-CoV-2 testing in the SARI surveillance protocol is important for monitoring severe COVID-19 cases in Brazil. | Thus far, in 2020, the number of severe acute respiratory illness hospitalizations in adults over the age of 60 has exceeded those in children under 2 years old, in Brazil. | Bastos LS, Niquini RP, Lana RM, et al. COVID-19 and hospitalizations for SARI in Brazil: a comparison up to the 12th epidemiological week of 2020 [published online 2020 Apr 22]. Cad Saude Publica. 2020. doi:10.1590/0102-311X00070120 |
| Infant, neurosurgery, general anesthesia, immuno-suppression, Milan, Italy | 22-Apr-20 | Neurosurgery in an Infant With COVID-19 | The Lancet | Correspondence | Administering general anesthesia to infants with respiratory infections is a challenge because anesthetic drugs suppress immunity. Authors report a case from Milan, Italy, of an 8-month-old male with complex hydrocephalus, who presented with a mild temperature, dry cough, and occipital cerebrospinal fluid collection, suggestive for shunt malfunctioning. A chest X-ray was negative for overt interstitial pneumonia, but the nasopharyngeal swab tested positive for SARS-CoV-2. Neurosurgical intervention for the shunt malfunction was arranged, following available protocols for patients with COVID-19. Four days later, a second neurosurgical revision of the shunt was performed. The infant did not experience any respiratory complications while under general anesthesia, and the major surgical operation was not associated with additional morbidity. | This case report from Milan, Italy describes a COVID-19 positive infant who underwent major neurosurgical operation, under immunosuppressive general anesthesia, and did not suffer any respiratory complications. | Carrabba G, Tariciotti L, Guez S, Calderini E, Locatelli M. Neurosurgery in an infant with COVID-19 [published online, 2020 Apr 22]. Lancet. 2020. doi:10.1016/S0140-6736(20)30927-2 |

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| Children, hospitalization, mortality rate, New York City | 22-Apr-20 | Presenting Characteristics, Comorbidities, and Outcomes Among 5700 Patients Hospitalized With COVID-19 in the New York City Area | JAMA | Original Investigation | This case series of patients with COVID-19 admitted to 12 hospitals in the New York City area, between March 1 and April 4, 2020, reports a total of 5700 COVID-19 positive patients, confirmed by RT-PCR testing of nasopharyngeal samples. In the 0-9 age group, 13 males and 13 females were discharged alive, with a median length of stay of 2.0 days (IQR: 1.7-2.7). Seven remained hospitalized at the study end point. In the 10-19 age group, 1 male and 7 females were discharged alive, with a median length of stay of 1.8 days (IQR: 1.0-3.1). Nine remained hospitalized at the study end point. Of patients <18 years old, 2 required ICU care, 1 discharged patient was readmitted, and no deaths were reported. | Reports from 12 hospitals in the New York City area show a mortality rate of 0% among children admitted with COVID-19 (<18 years old). | Richardson S, Hirsch JS, Narasimhan M, et al. Presenting Characteristics, Comorbidities, and Outcomes Among 5700 Patients Hospitalized With COVID-19 in the New York City Area [published online, 2020 Apr 22]. JAMA. doi:10.1001/jama.2020.6775 |
| Children, adolescents, clinical characteristics, pediatric management | 22-Apr-20 | Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Infection in Children and Adolescents: A Systematic Review | JAMA Pediatrics | Systematic Review | This review aims to evaluate currently reported pediatric cases of SARS-CoV-2 infection. An extensive search strategy was designed to retrieve all articles published from December 1, 2019, to March 3, 2020, in several electronic databases (PubMed, Cochrane Library, and CINAHL). A total of 815 articles were identified. Eighteen studies with 1065 participants (444 patients were younger than 10 years, and 553 were aged 10 to 19 years) with confirmed SARS-CoV-2 infection were included in the final analysis. All articles reflected research performed in China, except for 1 clinical case in Singapore. Children at any age were mostly reported to have mild respiratory symptoms, namely fever, dry cough, and fatigue, or were asymptomatic. Bronchial thickening and ground-glass opacities were the main radiologic features, and these findings were also reported in asymptomatic patients. Among the included articles, there was only 1 case of severe COVID-19 infection, which occurred in a 13-month-old infant. No deaths were reported in children aged 0 to 9 years. Available data about therapies were limited. | To authors' knowledge, this is the first systematic review that assesses and summarizes clinical features and management of children with SARS-CoV-2 infection. | Castagnoli R, Votto M, Licari A, et al. Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Infection in Children and Adolescents: A Systematic Review [published online, 2020 Apr 22]. JAMA Pediatr. 2020. doi:10.1001/jamapediatrics.2020.1467 |
| Neonatal infection, sepsis, mechanical ventilation, pneumothorax, hydroxy-chloroquine, azithromycin | 22-Apr-20 | Late-Onset Neonatal Sepsis in a Patient With Covid-19 | New England Journal of Medicine | Correspondence | A 3-week-old boy presented with a 2-day history of nasal congestion, tachypnea, and reduced feeding. He was born at 36 weeks of gestation to a 21-year-old woman (gravida 3, para 1). On transfer from the emergency department to a pediatric hospital, the patient had hypotension, tachycardia, hypothermia, and tachypnea. Chest radiography performed after intubation showed bilateral infiltrates and partial collapse of the right upper lobe. Transthoracic echocardiography showed normal cardiac anatomy and function. The white-cell count was 4000 per cubic millimeter with 55% lymphocytes; levels of inflammatory markers were elevated. Mechanical ventilation was initiated, and hydroxychloroquine and azithromycin were initiated for presumed COVID-19. On day 2 after admission, the hypotension resolved. A pneumothorax that developed on the right side and was successfully treated by tube thoracostomy. The results of RT-PCR testing to detect SARS-CoV-2 on admission, from nasal swabs, were positive on day 7; he completed the 5-day course of hydroxychloroquine and azithromycin. The patient was discharged on day 9 without supplemental oxygen. | This case illustrates a severe case of neonatal COVID-19 in a 3-week-old boy, who was managed with standard PICU protocols. | Coronado Munoz A, Nawaratne U, McMann D, Ellsworth M, Meliones J, Boukas K. Late-Onset Neonatal Sepsis in a Patient with Covid-19 [published online, 2020 Apr 22]. N Engl J Med. 2020. doi:10.1056/NEJMc2010614 |
| Pregnancy, early gestation, amniotic fluid, amniocentesis, serology, | 22-Apr-20 | No SARS-CoV-2 detected in amniotic fluid in mid-pregnancy | The Lancet Infectious Diseases | Correspondence | This report presents two cases of SARS-CoV-2 negativity in amniotic fluid from pregnant women, who were diagnosed with COVID-19 in early pregnancy. The first patient was a 34-year-old primiparous woman, admitted on January 30 after developing cough on January 26 (8 weeks + 5 days of gestation). The second patient was a 27-year-old multiparous | SARS-CoV-2 viral RNA was not detected by RT-PCR in amniotic fluid collected from two pregnant women | Yu N, Li W, Kang Q, Zeng W, Feng L, Wu J. No SARS-CoV-2 detected in amniotic fluid in mid-pregnancy [published online, 2020 Apr 22]. Lancet |

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| vertical transmission, China | | | | | woman who attended an outpatient clinic on February 12 (10 weeks + 1 day of gestation) after developing fever, weakness, diarrhea, and dyspnea on February 1 (8 weeks + 4 days of gestation). On March 23, both patients—in the second trimester of pregnancy—tested positive for SARS-CoV-2 total antibodies in serum and were negative for viral RNA in throat swabs. On March 26, amniotic fluid samples were collected from the patients via percutaneous, ultrasound-monitored amniocentesis. The RT-PCR results for amniotic fluid were negative, and tests for SARS-CoV-2 IgM and IgG in amniotic fluid were also negative. Although SARS-CoV-2 was not detected in the amniotic fluid of these two patients, the possibility of vertical transmission in early and middle pregnancy could not be ruled out because RNA is much less stable in amniotic fluid than DNA, and the virus might have been undetectable in amniotic fluid due to insufficient gestational age (optimal time for amniocentesis is 18-21 weeks' gestation). | in early pregnancy in China; however, due to small sample size and other limitations, the possibility of vertical transmission cannot be ruled out. | Infect Dis. doi:10.1016/S1473-3099(20)30320-0 |
| Pregnancy, surveillance, prenatal and delivery care | 22-Apr-20 | A call for action for COVID-19 surveillance and research during pregnancy | The Lancet Global Health | Comment | Pregnant women are currently not recognized as a population at increased risk for COVID-19; however, they might still be vulnerable for not only medical but also social risks. Additionally, prenatal and delivery care provides opportunities to answer key questions about COVID-19, including the collection of blood samples to generate population-based estimates of asymptomatic SARS-CoV-2 infections. Beyond virus-specific risks, illnesses with high fevers early in pregnancy are associated with specific birth defects, such as neural tube defects. Literature to date suggests that pregnant women with COVID-19 might not be at increased risk for severe complications or adverse outcomes. However, studies have lacked sufficient sample sizes to discern infrequent risks attributable to COVID-19 infection. Multiple strategies need to be deployed to address the knowledge gaps surrounding COVID-19 in pregnancy, including sentinel surveillance, seroprevalence surveys, and socio-behavioral and psychological research. | Pregnant women warrant more attention as a population at increased risk for COVID-19. Prenatal and delivery care provide opportunities to generate population-based estimates of asymptomatic SARS-CoV-2 infection. | Buekens P. Alger J. Bréart G. Cafferata ML. Harville E. Tomasso G. A call for action for COVID-19 surveillance and research during pregnancy [published online, 2020 Apr 22]. Lancet Glob Health. doi:10.1016/S2214-109X(20)30206-0 |
| Children, antiviral therapy, remdesivir, hydroxy-chloroquine | 22-Apr-20 | Multicenter Initial Guidance on Use of Antivirals for Children With COVID-19/SARS-CoV-2 | Journal of the Pediatric Infectious Diseases Society | Original Article | A panel of pediatric infectious diseases physicians and pharmacists from 18 North American institutions convened through a series of teleconferences and surveys, developing a set of guidance statements on antiviral therapy for pediatric COVID-19. Supportive care is recommended for the majority of children with mild COVID-19. For more critical cases, the panel suggests a decision-making framework for antiviral therapy that weighs risks and benefits based on disease severity as indicated by respiratory support needs, with consideration on a case-by-case basis of potential pediatric risk factors for disease progression. If an antiviral is used, the panel suggests remdesivir as the preferred agent. Hydroxychloroquine could be considered for patients who are not candidates for remdesivir or when remdesivir is not available. Antivirals should preferably be used as part of a clinical trial if available. | For the small proportion of children who develop severe or critical COVID-19, this guidance offers an approach for decision-making around antiviral therapy, with remdesivir as the preferred agent. | Chiotos K, Hayes M, Kimberlin DW, et al. Multicenter initial guidance on use of antivirals for children with COVID-19/SARS-CoV-2 [published online, 2020 Apr 22]. J Pediatric Infect Dis Soc. 2020. doi:10.1093/jpids/piaa045 |

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| Viral hepatitis elimination, immunization, mother to child transmission | 22-Apr-20 | COVID-19 and Viral Hepatitis Elimination Programs: Are We Stepping Backward? | Liver International | Letter to the Editor | The WHO set a goal for the elimination of viral hepatitis by 2030. This means that the number of newly infected persons and related mortality should be decreased by 90% and 65%, respectively. The elimination programs focus on testing, treatment, immunization against hepatitis B virus (HBV), preventing mother to child transmission, blood safety, and harm reduction. Now, COVID-19 is diverting attention and resources away from viral hepatitis elimination. | The COVID-19 pandemic has diverted attention and resources away from the WHO goal of eliminating viral hepatitis globally by 2030. | Karimi-Sari H, Rezaee-Zavareh MS. COVID-19 and viral hepatitis elimination programs: Are we stepping backward? [published online, 2020 Apr 22]. Liver Int. 2020. doi:10.1111/liv.14486 |
| Pediatric lung ultrasound, diagnosis, respiratory disease, pneumonia | 22-Apr-20 | How to Perform Pediatric Lung Ultrasound Examinations in the Time of COVID-19 | Journal of Ultrasound Medicine | Letter to the Editor | Although chest radiography is a routine tool to diagnose respiratory diseases including COVID-19 pneumonia, it lacks sensitivity and has relatively low accuracy. For this reason, lung ultrasound (LUS) has been increasingly used for the diagnosis of respiratory diseases in both adult and pediatric patients, including COVID-19. While waiting for the result of the nasopharyngeal swab for COVID-19, differential diagnosis of other known viral or bacterial respiratory infections remains pivotal and can be based on clinical, laboratory, and LUS findings. Authors introduce a procedure based on LUS use by evaluating clinicians. To date, 21 children with suspected COVID-19 infection have been evaluated with this procedure. Only one (13-year-old) boy tested positive. Five had viral respiratory tract infections, and one had a diagnosis of bacterial pneumonia. All cases were managed with LUS, and no chest radiographic or CT scans were performed. | In place of chest radiography, this letter suggests the use of lung ultrasound to diagnose COVID-19 in pediatric patients. | De Rose C, Inchingolo R, Smargiassi A, Zampino G, Valentini P, Buonsenso D. How to Perform Pediatric Lung Ultrasound Examinations in the Time of COVID-19 [published online, 2020 Apr 22]. J Ultrasound Med. 2020. doi:10.1002/jum.15306 |
| Children, allergy, asthma, biologics, corticosteroids, immuno-deficiency | 22-Apr-20 | Managing Childhood Allergies and Immunodeficiencies During Respiratory Virus Epidemics - The 2020 COVID-19 Pandemic | Pediatric Allergy and Immunology | Review | Patients with chronic diseases warrant special attention and adaptation of their regular treatment plan in the context of the COVID-19 pandemic. In children, allergy and asthma are among the most prevalent non-communicable chronic diseases, and severe asthma and immunodeficiency are classified as risk factors for COVID-19. Currently, there is no available evidence on the potential risk for severe disease posed by asthma and allergy treatments, including antihistamines, corticosteroids, bronchodilators. This statement of the EAACI Section on Pediatrics puts forward six recommendations for the management of childhood allergies and immunodeficiencies based on existing evidence. | Severe asthma, which is common in children, and immunodeficiency are risk factors for COVID-19. There is no current evidence on the effect of asthma and allergy treatments on clinical severity of COVID-19 in children. | Brough HA, Kalayci O, Sediva A, et al. Managing childhood allergies and immunodeficiencies during respiratory virus epidemics - the 2020 COVID-19 pandemic [published online, 2020 Apr 22]. Pediatr Allergy Immunol. 2020. doi:10.1111/pai.13262 |
| Pediatric, chloroquine, age-adjusted dosing, pharmaco-kinetics | 22-Apr-20 | Chloroquine Dosing Recommendations for Pediatric COVID-19 Supported by Modeling and Simulation | Clinical Pharma-cology & Therapeutics | Brief Report | As chloroquine (CHQ) becomes part of experimental treatment guidelines for COVID-19, pediatric dosing guidelines are needed. Recent pediatric data suggest that existing WHO dosing guidelines for children with malaria are suboptimal. A previously developed physiologically based pharmacokinetic (PBPK) model for CHQ was used to simulate exposure in adults and children and verified against published pharmacokinetic data. The COVID-19 recommended adult dosage regimen of 44mg/kg total was tested in adults and children to evaluate variation in exposure. Based on differences in AUC (0-70h), the optimal CHQ dose was determined in children of different ages compared to adults. Revised doses were re-introduced into the model to verify that overall CHQ exposure in each age band was within 5% of the predicted adult value. Simulations showed differences in drug exposure in children of different ages and adults when the same body weight-based dose is given. The following total cumulative doses are proposed: 35 mg/kg (CHQ base) for children 0-1 month, 47 mg/kg for 1-6 months, 55 mg/kg for 6 months-12 years and 44 mg/kg for adolescents and adults. | This study proposes a model-informed, age-adjusted dose selection paradigm to inform safe pediatric dosing of chloroquine for treatment of COVID-19, when pediatric clinical trial data are absent. | Verscheijden LFM, van der Zanden TM, van Bussel LPM, et al. Chloroquine dosing recommendations for pediatric COVID-19 supported by modeling and simulation [published online, 2020 Apr 22]. Clin Pharmacol Ther. 2020. doi:10.1002/cpt.1864 |

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| Infant, fever, clinical characteristics, San Francisco | 22-Apr-20 | Fever Without a Source in a Young Infant Due to SARS-CoV-2 | Journal of the Pediatric Infectious Diseases Society | Brief Report | A 5-week-old infant was admitted for fever, without a source (but who had known sick contacts, including her father), at Kaiser Permanente Northern California San Francisco Emergency Department. The infant subsequently tested positive for SARS-CoV-2 based on a combination of oropharyngeal and bilateral nasopharyngeal swab sent for qualitative nucleic amplification. The infant was born full-term and had a history of hydronephrosis and duplex kidney. She had a mild hospital course, without respiratory distress, and fever resolved within 30 hours of hospitalization. She continued to breastfeed while the mother wore a mask. | This unexpected presentation of an infant with fever without a source changed regional hospital screening procedures for COVID-19. | Kan MJ, Grant LMC, Muña MA, Greenhow TL. Fever without a source in a young infant due to SARS-CoV-2 [published online, 2020 Apr 22]. J Pediatric Infect Dis Soc. 2020. doi:10.1093/jpids/piaa044 |
| Niger Delta, Nigeria, children, malnutrition, school feeding program | 21-Apr-20 | Socially Distanced School-Based Nutrition Program Feeding Under COVID 19 in the Rural Niger Delta | The Extractive Industries and Society | Editorial | Over the past few decades, the Niger Delta has witnessed large-scale mass peaceful mobilizations and rebellion-like conditions from violent militia groups. Local host communities have suffered greatly from corruption, political instability, violence and the environmental devastation of their farmlands and fishing grounds. Oil companies, implicated in violence perpetrated by Nigerian security forces, have turned to corporate social responsibility (CSR) initiatives to repair relations with oil-producing communities. There are also governmental and humanitarian actors supporting various initiatives in the oil-producing areas. This article highlights the challenges that one long running micro-scale development project has faced due to the COVID-19 disease outbreak and the closure of all schools in Rivers State, Nigeria in March 2020. The school closures have halted some initiatives, but weekly nutritional program feedings in the village of Bodo, based on a formula called "Ogi Soy Plus" (mixture of millet, soybeans, crayfish), have continued in new, socially distanced forms to prevent children from becoming more malnourished during the pandemic. | A weekly nutritional program in the Niger Delta region of Nigeria provides an example of how to prevent further malnutrition in rural children by adapting the program to social distancing measures of the COVID-19 era. | Francis NN, Pegg S. Socially distanced school-based nutrition program feeding under COVID 19 in the rural Niger Delta [published online, 2020 Apr 21]. Extr Ind Soc. 2020. doi:10.1016/j.exis.2020.04.007 |
| At-risk children, pandemic response, low SES, behavioral health, foster care, maltreatment, medical complexity | 21-Apr-20 | Mitigating the Impacts of the COVID-19 Pandemic Response on At-Risk Children | Pediatrics | Perspective | This report highlights strategies that could mitigate the health risks of pandemic response measures for at-risk subpopulations of children are outlined for policymakers, healthcare workers/systems, and communities. Specific at-risk subpopulations of children include children with behavioral health needs, in foster care or at risk of maltreatment, and those with medical complexity. In particular, children in low socioeconomic status households are at highest risk for new or worsening issues. | Strategies to mitigate the health risks of pandemic response measures for at-risk subpopulations of children are outlined. | Wong CA, Ming D, Maslow G, Gifford EJ. Mitigating the Impacts of the COVID-19 Pandemic Response on At-Risk Children [published online, 2020 Apr 21]. Pediatrics. 2020. doi:10.1542/peds.2020-0973 |
| Children, point-of-care ultrasound, lung abnormalities, Italy | 21-Apr-20 | Lung Ultrasound in Children With COVID-19 | Pediatrics | Research Brief | Even though lung ultrasound (LUS) is recognized as a valid imaging technique for the diagnosis and follow-up of pneumonia in children, no data are currently available about LUS use in COVID-19 affected children. Considering the well-known advantages of point-of-care ultrasound, including the possibility of reducing patient movement across the hospital, this observational study investigates LUS findings in children (0-17 years) with SARS-CoV-2 infection, admitted to Regina Margherita Children Hospital in Turin, Italy between March 18 and March 26, 2020. Of total eight children included, two patients (25%) were classified as severe clinical types, two (25%) as moderate, and four (50%) as mild. LUS documented sub-pleural consolidations in two children and confluent B-lines (expression of an interstitial syndrome) in five. In 7/8, these results were in concordance with radiologic findings. This suggests that ultrasound may be a reasonable | Based on findings in a small cohort of children with mild or severe COVID-19, lung ultrasound may be a useful tool in the diagnostic and clinical management of pediatric COVID-19, as an alternative to radiology. | Denina M, Scolfaro C, Silvestro E, et al. Lung Ultrasound in Children With COVID-19 [published online, 2020 Apr 21]. Pediatrics. 2020. doi:10.1542/peds.2020-1157 |

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| | | | | | method to detect lung abnormalities in children with COVID-19, lowering radiation exposure, reducing the number of health care workers exposed to SARS-CoV-2, and allowing simple sterilization procedures for ultrasound equipment. | | |
| Children, orphan, homeless, residential institutions, family-based programs | 21-Apr-20 | The implications of COVID-19 for the care of children living in residential institutions | The Lancet Child & Adolescent Health | Correspondence | Around the world reports are emerging of numerous residential institutions for children being closed as a result of the COVID-19 pandemic. Children appear to be being sent back to their communities without proper consideration of where they will reside, how their transition will be supported, and whether their safety will be monitored. There is concern for children's physical, emotional, and social vulnerabilities, with immunodeficiencies that make them susceptible to COVID-19, and those returning to households without the knowledge or resources to support children with disabilities or those susceptible to COVID-19. As a result of COVID-19, many children may be abandoned or separated from their families due to increased poverty, mortality, poor health, family stress, domestic violence, and other reasons. | As residential institutions are closed, family-based and community-based programs should be supported for children who find themselves orphaned or homeless as a result of the pandemic. | Goldman PS, van Ijzendoorn MH, Sonuga-Barke EJS, on behalf of the Lancet Institutional Care Reform Commission Group. Lancet Child Adolesc Health. doi:10.1016/S2352-4642(20)30130-9 |
| Sexual and reproductive health, fragile settings, humanitarian settings, obstetric and newborn care, breastfeeding | 21-Apr-20 | Not a luxury: a call to maintain sexual and reproductive health in humanitarian and fragile settings during the COVID-19 pandemic | The Lancet Global Health | Comment | About 1.8 billion people live in fragile contexts worldwide, including 168 million individuals in need of humanitarian assistance. Approximately a quarter of those in fragile contexts are women and girls of reproductive age, with countries affected by fragility and crisis accounting for 61% of maternal deaths worldwide. Experience from past epidemics in these settings has showed that discontinuing health-care services deemed unrelated to the epidemic response resulted in more deaths than did the epidemic itself. Poor health outcomes will surge from the absence or disruption of lifesaving services, including emergency obstetric and newborn care. Early and exclusive breastfeeding and skin-to-skin contact for neonates should be promoted, and mother and neonate should not be separated unless one or both are critically ill in cases of suspected or confirmed COVID-19 infections | Experience from past epidemics in these settings has showed that discontinuing health-care services deemed unrelated to the epidemic response resulted in more deaths than did the epidemic itself. | Nguyen TT, Tappis H, Spilotros N, Krause S, Knaster S, for the Inter-Agency Working Group on Reproductive Health in Crises. Not a luxury: a call to maintain sexual and reproductive health in humanitarian and fragile settings during the COVID-19 pandemic. Lancet. 2020, doi:10.1016/S2214-109X(20)30190-X |
| Pregnancy, obesity, pulmonary embolism, respiratory failure, cesarean delivery, Italy | 20-Apr-20 | Pulmonary Embolism in a Young Pregnant Woman With COVID-19 | Thrombosis Research | Letter to the Editors-in-Chief | On March 29, 2020, a 17-year-old obese pregnant woman (BMI 32kg/m$^2$) at 29 weeks' gestation was admitted to a COVID-19 Maternity Hub in Milan with a 3-day history of fever, mild dyspnea and rhinitis. A nasopharyngeal swab detected SARS-CoV-2 infection. The following day, her respiratory function suddenly worsened, and she began oxygen supplementation. Blood cultures demonstrated a *Staphylococcus aureus* bacteremia. On April 4, the patient developed acute respiratory failure and underwent a chest CT scan that showed a segmental pulmonary embolus in the right superior lobe, in addition to ground-glass opacities. At 29 weeks and 6 days, the patient delivered a female newborn by urgent cesarean section due to worsening dyspnea. In the postpartum period, the patient's condition gradually improved on continuous positive airway pressure and was discharged. The newborn was admitted to the NICU and did not suffer from any complications. No information on neonatal SARS-CoV-2 testing was provided. Obese pregnant women with COVID-19 may have a particularly high risk of pulmonary embolism because of coexisting prothrombotic conditions. | A young obese pregnant woman with SARS-CoV-2 and *Staphylococcus aureus* co-infection developed pulmonary embolism, which prompted an urgent cesarean delivery. | Martinelli I, Ferrazzi E, Ciavarella A, et al. Pulmonary embolism in a young pregnant woman with COVID-19 [published online, 2020 Apr 20]. Thromb Res. 2020;191:36-37. doi:10.1016/j.thromres.2020.04.022 |

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| Children, nutritional status, under-nourished, food security, lockdown, India | 20-Apr-20 | Ensuring availability of food for child nutrition amidst the COVID–19 pandemic: Challenges and way forward | Indian Journal of Community Health | Commentary | A 21-day lockdown has been imposed by the Government of India, to curtail the spread of COVID-19. This has impacted the availability of food and nutrition related services, like the Mid-Day Meal Scheme, which would affect the nutritional status of children throughout India. This report discusses the challenges and way forward for ensuring availability of food for child nutrition during this health crisis. The government and non-government partners must coordinate and scale up child nutrition services in the community through strengthening of the public distribution system and home delivery of food parcels, wherever feasible. | Lockdown measures have the potential to cause serious impact on the nutritional status of children throughout India. | Upadhyay MK, Patra S, Khan AM. Ensuring availability of food for child nutrition amidst the COVID – 19 pandemic: Challenges and Way forward [published online 2020 Apr 20]. Indian J Community Health;32(2):251-254. |
| Pregnancy, neonate, cesarean delivery, Portugal | 20-Apr-20 | Cesarean Section in a Pregnant Woman With COVID-19: First Case in Portugal | Acta Médica Portuguesa | Case Report | Authors report the first cesarean delivery in a woman with COVID-19 at a level III hospital in Portugal. A healthy 35-year-old woman with a term pregnancy tested positive for SARS-CoV-2 infection, on RT-PCR of nasopharyngeal and oropharyngeal swabs, on the day of labor induction. Given a Bishop score < 4 and prior history of a cesarean section, the team decided to perform a surgical delivery. The newborn was separated from his mother immediately after birth. Newborn nasal and oropharyngeal swabs were all negative for SARS-CoV-2. The mother began mechanical breast stimulation to begin breastfeeding after recovering from COVID-19. | No adverse maternal or neonatal outcomes were observed in this case report of cesarean delivery of a newborn by a mother with confirmed COVID-19. | Lyra J, Valente R, Rosário M, Guimarães M. Cesarean Section in a Pregnant Woman with COVID-19: First Case in Portugal [published online, 2020 Apr 20]. Acta Med Port. 2020. doi:10.20344/amp.13883 |
| Children, respiratory syncytial virus, pneumonia, lymphocyte count, serum IL-10, co-infection | 20-Apr-20 | The Profile of Peripheral Blood Lymphocyte Subsets and Serum Cytokines in Children With 2019 Novel Coronavirus Pneumonia | Journal of Infection | Original Research | 56 children with COVID-19 pneumonia (40/56) or with respiratory syncytial virus (RSV) pneumonia (16/56) were included in the study. Compared with children with RSV pneumonia, patients with COVID-19 pneumonia had higher counts of CD3+8+ lymphocytes, higher percentages of CD3+ and CD3+8+ lymphocytes, and a lower percentage of CD19+ lymphocytes. The serum IL-10 level was significantly higher in children with RSV pneumonia. One COVID-19 pneumonia child, who had an obvious increase in serum IL-10 levels, developed severe pneumonia. Based on these results, effective CD8+ T cell response may modulate the mild to moderate symptoms of COVID-19 pneumonia seen in this study, compared to RSV which can cause more severe lower respiratory tract infection. The adaptable change in IL-10 level might also contribute to the relatively mild pneumonia symptoms in children with COVID-19 pneumonia, and bacterial co-infection might be a risk factor of severe COVID-19 pneumonia. | CD8+ T cell response and serum IL-10 levels may influence the severity of COVID-19 pneumonia in children. | Li H, Chen K, Liu M, Xu H, Xu Q. The profile of peripheral blood lymphocyte subsets and serum cytokines in children with 2019 novel coronavirus pneumonia [published online, 2020 Apr 20]. J Infect. 2020. doi:10.1016/j.jinf.2020.04.001 |
| Pregnancy, clinical characteristics, laboratory characteristics | 20-Apr-20 | Clinical Manifestation and Laboratory Characteristics of SARS-CoV-2 Infection in Pregnant Women | Virologica Sinica | Research Article | Pregnancy is a unique physiological condition and is characterized by altered immunity and elevated hormone levels to actively tolerate the semi-allogeneic fetus. This report retrospectively analyzed the clinical features, laboratory characteristics, and imaging features of eight pregnant cases of SARS-CoV-2 infection during the pre-partum and post-partum periods. Four of the eight pregnant women were asymptomatic before delivery but became symptomatic post-partum. White blood cell counts increased, and lymphocyte counts decreased. Serum C-reactive protein levels also increased to a higher level than those in general pregnancy. | Laboratory characteristics of 8 SARS-CoV-2 positive pregnant women in this study included elevated white blood cell count and CRP levels, and decreased lymphocyte count. | Wu C, Yang W, Wu X, et al. Clinical Manifestation and Laboratory Characteristics of SARS-CoV-2 Infection in Pregnant Women [published online, 2020 Apr 20]. Virol Sin. 2020. doi:10.1007/s12250-020-00227-0 |
| Nutrition, micronutrient deficiencies, food insecurity | 20-Apr-20 | Nutrition Amid the COVID-19 Pandemic: A Multi-Level Framework for Action | European Journal of Clinical Nutrition | Perspective | This commentary presents a framework for action to maintain optimal nutrition using an adapted version of the ecological model of health behavior. At the individual level, nutritional deficiencies of energy, protein, and specific micronutrients are associated with depressed immune function and increased susceptibility to infection. An adequate intake of iron, zinc, and vitamins A, E, B6, and B12 is predominantly vital for the maintenance of | This framework addresses the impact of COVID-19 on nutrition at multiple levels within society, with particular | Naja F, Hamadeh R. Nutrition amid the COVID-19 pandemic: a multi-level framework for action [published online, 2020 Apr 20]. Eur J Clin Nutr. 2020. |

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| | | | | | immune function. At the community level, food access and availability are particularly vulnerable to the implications of the COVID-19 outbreak. At the national level, governments are also battling destabilization in their economies and a rising threat of food insecurity. At the global level, it is essential to ensure the smooth flow of global trade and make full use of the international markets as a vital tool to secure food supply across the globe to prevent food insecurity. | attention paid to the importance of micronutrient intake for immune function and the challenges of food insecurity. | doi:10.1038/s41430-020-0634-3 |
| Maternal-infant dyad, breastfeeding, breast milk samples, Italy | 20-Apr-20 | Managing COVID-19-Positive Maternal-Infant Dyads: An Italian Experience | Breast-feeding Medicine | Correspondence | This report describes two cases of maternal-infant dyads, in which all four individuals tested positive by nasopharyngeal swab for SARS-CoV-2, at a referral care center in Rome, Italy. Mother 1 and newborn 1 were 36 years old and 18 days old at admission, respectively. Mother 2 and newborn 2 were 26 years old and 10 days old at admission, respectively. Neither the mothers nor the infants required intensive care unit admission. Viral nucleic acid was not detected by RT-PCR in expressed breast milk samples of both mothers. To the authors' knowledge, these are the first data on postnatal horizontal COVID-19 infection in newborns and breast milk analysis in Italy. | This report of two confirmed COVID-19 maternal-infant dyads in Rome, Italy did not find evidence of viral nucleic acid in breast milk samples. | Salvatori G, De Rose DU, Concato C, et al. Managing COVID-19-Positive Maternal-Infant Dyads: An Italian Experience [published online, 2020 Apr 20]. Breastfeed Med. 2020, doi:10.1089/bfm.2020.0095 |
| Vitamin D, disease severity, population mortality, Southern hemisphere | 20-Apr-20 | Editorial: Low Population Mortality From COVID-19 in Countries South of Latitude 35 Degrees North - Supports Vitamin D as a Factor Determining Severity | Alimentary Pharma-cology & Therapy | Invited Editorial | When mortality per million is plotted against latitude, it can be seen that all countries that lie below 35 degrees North have relatively low mortality due to COVID-19. This happens to be the latitude above which people do not receive sufficient sunlight to retain adequate vitamin D levels during the winter. Vitamin D deficiency has been shown to correlate with hypertension, diabetes, and obesity—all features associated with increased risk of severe COVID-19. It is important to note that the hypothesis is not that vitamin D would protect against SARS-CoV-2 infection but that it could be very important in preventing the cytokine storm and subsequent ARDS that is commonly the cause of mortality. | Lower COVID-19 mortality in the Southern hemisphere, where vitamin D deficiency is rare, may suggest a protective role for vitamin D through prevention against the cytokine storm, not necessarily infection itself. | Rhodes JM, Subramanian S, Laird E, Anne Kenny R. Editorial: low population mortality from COVID-19 in countries south of latitude 35 degrees North - supports vitamin D as a factor determining severity [published online, 2020 Apr 20]. Aliment Pharmacol Ther. 2020. doi:10.1111/apt.15777 |
| Children, infants, neonates, epidemiology, clinical characteristics, WHO, China | 20-Apr-20 | Children May Be Less Affected Than Adults by Novel Coronavirus (COVID-19) | Journal of Paediatrics and Child Health | Heads Up | The February 2020 World Health Organization-China Joint Mission on Coronavirus Disease found that only 2.4% of cases of COVID-19 were in those less than 19 years of age. 2.5% of children developed severe disease (compared to 13.8% overall) and 0.2% of children developed critical disease (compared to 6.1% overall). Severe disease was defined as dyspnea, tachypnea, hypoxia or infiltrates affecting >50% of the lung fields within 48 hours; critical disease was defined as respiratory failure, septic shock and/or multi-organ failure. Although reported case numbers are quite small, young infants seem to have relatively low rates of being severely affected; one study of nine infected infants found none required intensive care or had significant complications. Despite this, certain pediatric populations, such as extremely prematurely born babies, are likely to be particularly vulnerable, with one death confirmed in this subgroup. | This brief communication summarizes data on COVID-19 in children from the February 2020 WHO-China Joint Mission on Coronavirus Disease, as well as case reports on infant and neonatal infection. | Children may be less affected than adults by novel coronavirus (COVID-19). J Paediatr Child Health. 2020;56(4):657. doi:10.1111/jpc.14876 |

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| Pediatric anesthesia, intubation, aerosol generation | 19-Apr-20 | Paediatric Anaesthetic Implications of COVID-19 - A Review of Current Literature | Paediatric Anaesthesia | Educational Review | Pediatric anaesthetists, who perform aerosol generating procedures involving the airway, are at high risk of exposure to the SARS-CoV-2 virus and must be well-prepared to manage such cases. This article reviews the relevant pediatric literature surrounding COVID-19 and summarizes the key recommendations for anaesthetists involved in the care of children during this pandemic. | Key recommendations for pediatric anesthesia during the COVID-19 pandemic are outlined. | Lee-Archer P, von Ungern-Sternberg BS. Paediatric Anaesthetic implications of COVID-19 - A Review of Current Literature [published online, 2020 Apr 19]. Paediatr Anaesth. 2020. doi:10.1111/pan.13889 |
| Children, chloroquine, treatment, pharmaco-kinetics, safety margin | 18-Apr-20 | Chloroquine for SARS-CoV-2: Implications of Its Unique Pharmacokinetic and Safety Properties | Clinical Pharmaco-kinetics | Current Opinion | This article discusses the pharmacokinetics and safety of chloroquine, an old antimalarial drug, that should be considered in SARS-CoV-2 infections. Chloroquine is well absorbed and distributes extensively, with an apparent and terminal half-life of 1.6 days and 2 weeks, respectively. Chloroquine is metabolized by cytochrome P450 and renal clearance is responsible for one third of total clearance. There is a lack of reliable information on target concentrations of chloroquine for COVID-19, thus doses that have proven safe in malaria treatment should be considered. Clinical experience has shown that chloroquine has a narrow safety margin, as three times the adult therapeutic dosage for malaria can be lethal when given as a single dose. Although infrequent, poisoning in children is extremely dangerous where one to two tablets can potentially be fatal. | The pharmacokinetic and safety properties of chloroquine suggest that chloroquine can be used safely for an acute SARS-CoV-2 infection, but the safety margin is small, particularly in children. | Smit C, Peeters MYM, van den Anker JN, Knibbe CAJ. Chloroquine for SARS-CoV-2: Implications of Its Unique Pharmacokinetic and Safety Properties [published online, 2020 Apr 18]. Clin Pharmacokinet. 2020. doi:10.1007/s40262-020-00891-1 |
| Children, clinical characteristics, epidemiology, vertical transmission | 18-Apr-20 | Novel Coronavirus Disease (COVID-19) in Children | Turkish Journal of Medical Sciences | Review Article | According to the current literature, children account for 1-5% of diagnosed COVID-19 cases. Approximately 90% of pediatric patients are diagnosed with asymptomatic, mild, or moderate disease. However, up to 6.7% of cases may be severe. Severe illness is generally seen in patients younger than 1 year of age and patients who have underlying diseases. The epidemiological and clinical patterns of COVID-19 and treatment approaches in pediatric patients still remain unclear. Mother to infant transmission of SARS-CoV-2, through breast milk or vertical transmission, is also controversial. This review summarizes the current epidemic, clinical presentation, diagnosis, and treatment of COVID-19 in pediatric patients. | Authors comprehensively review existing literature on the pathogenesis, transmission, epidemiology, clinical findings, diagnosis, and treatment of COVID-19 in pediatric patients. | Bedir Demirdağ T, Tezer H. Novel Coronavirus disease (COVID-19) in children [published online, 2020 Apr 18]. Turk J Med Sci. 2020. doi:10.3906/sag-2004-174 |
| Pregnancy, neonate, vertical transmission, maternal antibodies, serology | 18-Apr-20 | Severe COVID-19 During Pregnancy and Possible Vertical Transmission | American Journal of Perinatology | Short Communication | A 41-year-old pregnant woman with a history of previous cesarean deliveries and diabetes mellitus presented with a 4-day history of malaise, low-grade fever, and progressive shortness of breath. A nasopharyngeal swab was positive for COVID-19, and COVID-19 serology was negative. The patient developed respiratory failure requiring mechanical ventilation on day 5 of disease onset. The patient underwent a cesarean delivery, and neonatal isolation was implemented immediately after birth, without delayed cord clamping or skin-to-skin contact. The neonatal nasopharyngeal swab, 16 hours after delivery, was positive for SARS-CoV-2 on RT-PCR. Neonatal IgM and IgG for SARS-CoV-2 were negative. Maternal IgM and IgG were positive on postpartum day 4 (day 9 after symptom onset). To the authors' knowledge, this is the earliest reported positive PCR in the neonate, raising concern for the possibility of vertical transmission. | This case study describes severe presentation of COVID-19 in a pregnant woman. This is the earliest reported positive diagnosis for COVID-19 in a neonate. Maternal anti-SARS-CoV-2 antibodies were not detectable until after delivery. | Alzamora MC, Paredes T, Caceres D, Webb CM, Valdez LM, La Rosa M. Severe COVID-19 during Pregnancy and Possible Vertical Transmission [published online, 2020 Apr 18]. Am J Perinatol. 2020. doi:10.1055/s-0040-1710050 |

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| Pregnancy, pre-term cesarean delivery, stillbirth, fetal death, neonatal outcomes, vertical transmission | 17-Apr-20 | COVID19 During Pregnancy: A Systematic Review of Reported Cases | American Journal of Obstetrics & Gynecology | Review | 6 studies, including 51 women, were eligible for this systematic review of PubMed, CINAHL, and Scopus databases. Three pregnancies were ongoing at the time of the report; of the remaining 48, 46 were delivered via cesarean section and 2 vaginally; there was 1 stillbirth and 1 neonatal death. Although vertical transmission of SARS-Cov2 has been excluded in these studies, and maternal and neonatal outcomes have been generally favorable, the high rate of pre-term cesarean delivery is a reason for concern. These interventions were typically elective, and it is reasonable to question whether or not they were warranted. COVID-19 associated with respiratory insufficiency in late pregnancies creates a complex clinical scenario. | A high rate of pre-term cesarean delivery among pregnant women with COVID-19 warrants concern. | Della Gatta AN, Rizzo R, Pilu G, Simonazzi G. COVID19 during pregnancy: a systematic review of reported cases [published online, 2020 Apr 17]. Am J Obstet Gynecol. 2020. doi:10.1016/j.ajog.2020.04.013 |
| Nutrition, Western diet, obesity, type II diabetes, chronic inflammation, immune response, neuro-inflammatory | 17-Apr-20 | The Impact of Nutrition on COVID-19 Susceptibility and Long-Term Consequences | Brain, Behavior, and Immunity | Review | The high rate of consumption of diets high in saturated fats, sugars, and refined carbohydrates (collectively called Western diet, WD) worldwide, contribute to the prevalence of obesity and type II diabetes, and could place these populations at an increased risk for severe COVID-19 pathology and mortality. WD consumption activates the innate immune system and impairs adaptive immunity, leading to chronic inflammation and impaired host defense against viruses. Furthermore, peripheral inflammation caused by COVID-19 may have long-term consequences in those that recover, leading to chronic medical conditions such as dementia and neurodegenerative disease, likely through neuroinflammatory mechanisms that can be compounded by an unhealthy diet. | Consumption of Western diets, contributing to obesity and type II diabetes, leads to chronic inflammation and impaired host defense against SARS-CoV-2, in addition to potentially long-term neuroinflammatory complications. | Butler MJ, Barrientos RM. The impact of nutrition on COVID-19 susceptibility and long-term consequences [published online, 2020 Apr 17]. Brain Behav Immun. 2020. doi:10.1016/j.bbi.2020.04.040 |
| Neonate, preterm delivery, amniotic fluid sample, maternal death | 17-Apr-20 | Preterm delivery in pregnant woman with critical COVID-19 pneumonia and vertical transmission | Prenatal Diagnosis | Research Letter | On March 7, 2020, a 22-year-old female (32 weeks' gestation), presented at Imam Khomeini Hospital in Sari, Iran with a 4-day history of dyspnea, myalgia, anorexia, nausea, non-productive cough and fever. The mother's nasopharyngeal swabs tested positive for SARS-CoV-2. On March 11, a preterm female neonate was delivered via cesarean section, weighing 2.35kg; she was kept in an isolated NICU and fed with powdered milk. Umbilical cord blood and neonatal nasal and throat swab samples, collected after delivery, tested negative for SARS-CoV-2 on RT-PCR; whereas, amniotic fluid samples tested positive. 24 hours later, the neonate's nasal and throat swab samples turned positive for SARS-CoV-2. After cesarean delivery, the mother's condition progressively worsened, despite treatment with antivirals and corticosteroids, and she died on March 26. | In this case report from Iran, amniotic fluid and neonatal nasal/throat swab samples tested positive for SARS-CoV-2 following cesarean delivery by a mother with COVID-19. The mother died due to respiratory complications. | Zamaniyan M, Ebadi A, Aghajanpoor Mir S, Rahmani Z, Haghshenas M, Azizi S. Preterm delivery in pregnant woman with critical COVID-19 pneumonia and vertical transmission [published online, 2020 Apr 17]. Prenat Diagn. 2020. doi:10.1002/pd.5713 |
| Immunization, vaccine delivery, LMICs, catch-up campaigns | 17-Apr-20 | COVID-19 disrupts vaccine delivery | The Lancet Infectious Diseases | Newsdesk | The impact of the ongoing pandemic of coronavirus 2019 on immunization campaigns in low- and middle-income countries is concerning. Immunization services will be disrupted due to the interplay of multiple factors. One reason is that healthcare services are stretched and directed to other priorities, and a second factor is that because of social distancing recommendations, parents are not bringing their children to clinics. Another issue has to do with the supply chain, which is under historic strain due to transport disruptions. Preventive mass vaccination campaigns can also inadvertently contribute to COVID-19 spread, and UNICEF is recommending that these campaigns be suspended for now. There will be a need for "catch-up" campaigns, to identify those who missed their immunizations as well as re-establishing community demand. | "Catch-up" immunization campaigns will be necessary to account for disruptions in vaccine delivery across LMICs due to the COVID-19 pandemic. | Nelson R. COVID-19 disrupts vaccine delivery [published online, 2020 Apr 17]. Lancet Infect Dis. 2020. doi:10.1016/S1473-3099(20)30304-2 |

| Key Terms | Date Published | Title | Journal / Source | Type of Publication | Summary & Key Points | Specific Observations | Full Citation |
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| Household transmission, children, secondary attack rate, contact members | 17-Apr-20 | The Characteristics of Household Transmission of COVID-19 | Clinical Infectious Diseases | Major Article | A total of 105 index patients and 392 household contacts were enrolled in this household cohort study. Both index patients and household members were evaluated by SARS-CoV-2 RT-PCR. Secondary transmission of SARS-CoV-2 developed in 64 of 392 household contacts (16.3%). The secondary attack rate to children was 4% comparing with 17.1% to adults. The secondary attack rate to contacts within the households with index patients quarantined by themselves since onset of symptoms was 0%, compared with 16.9% to the contacts without index patients quarantined. The secondary attack rate to contacts who were spouses of index cases was 27.8% comparing with 17.3% to other adult members in the households. Ages of household contacts and spouse relationship with index case are risk factors for transmission of SARS-CoV-2 within household. | The rate of secondary transmission of SARS-CoV-2 within households from index cases to contact members was 16.3% in this study. The secondary attack rate to children was 4%, compared to 17.1% to adults. | Li W, Zhang B, Lu J, et al. The characteristics of household transmission of COVID-19 [published online, 2020 Apr 17]. Clin Infect Dis. 2020. doi:10.1093/cid/ciaa450 |
| Infant, febrile, routine testing, respiratory symptoms | 17-Apr-20 | SARS-CoV-2 Infection (COVID-19) in Febrile Infants Without Respiratory Distress | Clinical Infectious Diseases | Brief Report | Two cases of SARS-CoV-2 infection in male infants (25-day-old full-term and 56-day-old pre-term) presenting with fever in the absence of respiratory distress are reported. The infants required hospitalization for evaluation of possible invasive bacterial infections. In the first months of life, infants presenting with fever typically undergo diagnostic evaluations for invasive bacterial disease, even in the absence of clinical signs. Diagnoses in this study resulted from routine isolation and RT-PCR-based testing for SARS-CoV-2 in febrile infants in an outbreak setting. | In the context of an ongoing outbreak, authors encourage routine testing of febrile infants for SARS-CoV-2, even in the absence of respiratory symptoms. | Paret M, Lighter J, Pellett Madan R, Raabe VN, Shust GF, Ratner AJ. SARS-CoV-2 infection (COVID-19) in febrile infants without respiratory distress [published online, 2020 Apr 17]. Clin Infect Dis. 2020. doi:10.1093/cid/ciaa452 |
| Pregnancy, neonates, clinical characteristics, abortions, breast milk samples, China | 17-Apr-20 | Clinical Characteristics of Pregnant Women With Covid-19 in Wuhan, China | New England Journal of Medicine | Correspondence | From December 8, 2019, to March 20, 2020, 118 pregnant women with COVID-19 in Wuhan were identified in the epidemic reporting system of the National Health Commission of China. 84 women (71%) had positive PCR testing for SARS-CoV-2 infection, and the remaining 34 (29%) had suggestive findings on chest CT. 75 of 118 (64%) had been infected with SARS-CoV-2 in the third trimester. The most common symptoms in 112 women with available data were fever (in 75%) and cough (in 73%). Lymphopenia was present in 51 of 116 patients (44%). A total of 88 of the 111 women (79%) who underwent chest CT had infiltrates in both lungs. A total of 109 of 118 women (92%) had mild disease, and 9 (8%) had severe disease (hypoxemia), 1 of whom received noninvasive mechanical ventilation (critical disease). Severe disease developed in 6 of the 9 women after delivery. There were no deaths. Among the study population, there were 3 spontaneous abortions, 2 ectopic pregnancies, and 4 induced abortions (all owing to patients' concerns about COVID-19). A total of 68 of 118 patients (58%) delivered during the study period and had 70 births (2 sets of twins). Of these 68 patients, 63 (93%) underwent a cesarean section; in 38 of 62 cases (61%), the procedure was performed because of concern about the effects of COVID-19 on the pregnancy. A total of 14 deliveries (21%) were premature; 8 were induced (7 owing to concern about COVID-19). No babies had neonatal asphyxia. SARS-CoV-2 testing of throat swabs from 8 newborns and breastmilk samples from 3 mothers was negative. | In this study of 118 pregnant women with COVID-19, there were no maternal deaths. Of 68 women who delivered during the study period, 63 (93%) underwent cesarean section. All neonates tested negative for COVID-19 infection. Breastmilk samples also tested negative. | Chen L, Li Q, Zheng D, et al. Clinical Characteristics of Pregnant Women with Covid-19 in Wuhan, China [published online, 2020 Apr 17]. N Engl J Med. 2020. doi:10.1056/NEJMc2009226 |

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| Children, aging, immune function, pro-inflammatory response, causes of mortality, geroscience | 17-Apr-20 | A Geroscience Perspective on COVID-19 Mortality | The Journals of Gerontology | Research Report | COVID-19 can have serious health consequences, though risks of complications are highly age-dependent. Rates of hospitalization and death are less than 0.1% in children but increase to 10% or more in older people. Moreover, at all ages, men are more likely than women to suffer serious consequences from COVID-19. These patterns are familiar to the geroscience community. The effects of age and sex on mortality rates from COVID-19 mirror the effects of aging on almost all major causes of mortality. Age-related decline in adaptive immune function and increase in pro-inflammatory response are likely contributing factors, as well as an increasing number of comorbid conditions as people age. These factors underscore the need to consider the role of basic biological mechanisms of aging on potential treatment. | The dynamics of age-specific mortality due to COVID-19 mirror other major causes of mortality. | Promislow DEL. A geroscience perspective on COVID-19 mortality [published online, 2020 Apr 17]. J Gerontol A Biol Sci Med Sci. 2020. doi:10.1093/gerona/glaa094 |
| Telehealth, children, pediatric patient enrollment | 17-Apr-20 | Rapid Development of Telehealth Capabilities Within Pediatric Patient Portal Infrastructure for COVID-19 Care: Barriers, Solutions, Results | Journal of the American Medical Informatics Association | Brief Communication | The COVID-19 national emergency has led to surging care demand and the need for unprecedented telehealth expansion. Rapid telehealth expansion can be especially complex for pediatric patients. From the experience of a large academic medical center, this report describes a pathway for efficiently increasing capacity of remote pediatric enrollment for telehealth while fulfilling privacy, security, and convenience concerns. The design and implementation of the process took two days. Weekly enrollment subsequently increased 10-fold for children (age 0-12 years) and 1.2-fold for adolescents (age 13-17 years). Weekly telehealth visits increased 200-fold for children and 90-fold for adolescents. The obstacles and solutions presented in this report can provide guidance to health systems for similar challenges during the COVID-19 response and future disasters. | This report outlines recommendations for rapid implementation of remote pediatric enrollment for telehealth services. | Patel PD, Cobb J, Wright D, et al. Rapid Development of Telehealth Capabilities within Pediatric Patient Portal Infrastructure for COVID-19 Care: Barriers, Solutions, Results [published online, 2020 Apr 17]. J Am Med Inform Assoc. 2020. doi:10.1093/jamia/ocaa065 |
| Children, hospitalization rate, United States, CDC | 17-Apr-20 | Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019 — COVID-NET, 14 States, March 1–30, 2020. | Morbidity and Mortality Weekly Report | Report | COVID-NET was implemented to produce robust, weekly, age-stratified and population-based surveillance for laboratory-confirmed COVID-19-associated hospitalization rates in 99 counties of 14 states. The catchment area represents approximately 10% of the U.S. population. Among 1482 patients admitted during March 1-30, 2020, the first month of U.S. surveillance, the hospitalization rate was 0.3 per 100,000 in persons aged 0-4 years, 0.1 in those aged 5-17 years, 2.5 in those aged 18-49 years, 7.4 in those aged 50-64 years, and 13.8 in those aged ≥65 years. Hospitalization rates increase with age and are highest among older adults; the majority of hospitalized patients have underlying conditions. Ongoing monitoring of hospitalization rates is critical to understanding the evolving epidemiology of COVID-19 in the U.S. and to guide planning of health care resources. | Hospitalization rates for persons 17 years and younger in the United States were <1 per 100,000. Rates of hospitalization increase with age. | Garg S, Kim L, Whitaker M, et al. Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019 — COVID-NET, 14 States, March 1–30, 2020. MMWR Morb Mortal Wkly Rep 2020;69:458–464. DOI: http://dx.doi.org/10.15585/mmwr.mm6915e3 |
| Nutrition, vitamins, trace elements, nutraceuticals, probiotics, micronutrients | 16-Apr-20 | Enhancing Immunity in Viral Infections, With Special Emphasis on COVID-19: A Review | Diabetes & Metabolic Syndrome: Clinical Research & Reviews | Review | This review presents a systematic search of previous clinical trials that studied nutrition-based interventions for viral diseases (with special emphasis on respiratory infections). 43 studies were obtained (vitamins: 13; minerals: 8; nutraceuticals: 18 and probiotics: 4). Among vitamins, A and D showed a potential benefit, especially in deficient populations. Among trace elements, selenium and zinc have also shown favorable immune-modulatory effects in viral respiratory infections. Several nutraceuticals and probiotics may also have some role in enhancing immune functions. Micronutrients may be beneficial in nutritionally depleted elderly population. | Previous clinical trials show evidence of benefit from vitamins A and D, trace elements like selenium and zinc, nutraceuticals and probiotics in viral infections. | Jayawardena R, Sooriyaarachchi P, Chourdakis M, et al. Enhancing immunity in viral infections, with special emphasis on COVID-19: A review [published online, 2020 Apr 16]. Diabetes Metab Syndr. 2020. doi:10.1016/j.dsx.2020.04.015 |

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| Children, clinical characteristics, diagnosis, household contact history | 16-Apr-20 | Clinical Characteristics and Diagnostic Challenges of Pediatric COVID-19: A Systematic Review and Meta-Analysis | Journal of the Formosan Medical Association | Original Article | A systematic review was performed using PubMed and Embase to find case series of children with COVID-19. Nine case series were included. In the pooled data, most of patients (75%) had a household contact history. The disease severity was mainly mild to moderate (98%). Only 2 children (2%) received intensive care. Fever occurred in 59% of the patients, while cough in 46%. Gastrointestinal symptoms (12%) were uncommon. There are 26% children are asymptomatic. The most common radiographic finding was ground glass opacities (48%). Currently, there is no evidence of vertical transmission to neonates born to mothers with COVID-19. Compared with SARS-CoV, SARS-CoV-2 causes less severe disease in children. | Authors conclude that disease severity in children is relatively mild, and current diagnosis is based mainly on ground glass opacities on chest CT, epidemiological suspicion and contact tracing. | Chang TH, Wu JL, Chang LY. Clinical characteristics and diagnostic challenges of pediatric COVID-19: A systematic review and meta-analysis [published online, 2020 Apr 16]. J Formos Med Assoc. 2020. doi:10.1016/j.jfma.2020.04.007 |
| Children, wellbeing, technology, vaccinations, food insecurity | 16-Apr-20 | The COVID-19 pandemic: Technology use to support the wellbeing of children | Journal of Pediatric Nursing | Editorial | Authors explore different uses of technology to maintain the social, physical, emotional, intellectual, and spiritual wellbeing of children during the COVID-19 pandemic. Of note, the American Academy of Pediatrics recommends that newborns, infants, and young children continue to be seen in person by a primary care provider for their routine vaccinations and well visits. pediatricians are encouraged to monitor community spread of COVID-19. | Technology has been leveraged to maintain the wellbeing of children in a variety of ways. | Goldschmidt K. The COVID-19 pandemic: Technology use to support the wellbeing of children [published online, 2020 Apr 16]. J Pediatr Nurs. 2020. doi:10.1016/j.pedn.2020.04.013 |
| Children, gastro-intestinal, fecal-oral transmission, rectal swab, Italy | 16-Apr-20 | Fecal-Oral Transmission of SARS-CoV-2 in Children: Is It Time to Change Our Approach? | The Pediatric Infectious Diseases Journal | Brief Report | Two pediatric cases of COVID-19 in Italy were confirmed using nasopharyngeal and rectal swabs. This report also reviews current evidence on SARS-CoV-2 detection via RT-PCR in stool and rectal swabs in adults and children. Only one study used electron microscopy for live virus detection. Additional evidence exists in support of viral viability in environmental settings that may predispose fecal-oral transmission. Since gastrointestinal symptoms appear more frequent in pediatric populations, surveillance with rectal swabs should be extended to infants and children, to better diagnose and define the duration of isolation. | Based on evidence of viral shedding patterns in fecal samples, this report suggests the inclusion of rectal swab testing in COVID-19 surveillance efforts, especially in children. | Donà D, Minotti C, Costenaro P, Da Dalt L, Giaquinto C. FECAL-ORAL TRANSMISSION OF SARS-COV-2 IN CHILDREN: IS IT TIME TO CHANGE OUR APPROACH? [published online, 2020 Apr 16]. Pediatr Infect Dis J. 2020. doi:10.1097/INF.0000000000002704 |
| Pregnancy, children, elective procedures, obstetric services, labor and delivery | 16-Apr-20 | Women and Children First: The Need for Ringfencing During the COVID-19 Pandemic | Journal of Perinatal Medicine | Editorial | Only changes that are well supported in deliberative clinical judgment should be made in response to the COVID-19 pandemic. "Elective" means that a form of clinical management is time-sensitive, in that it can be postponed as long as there is no short-term or long-term increased risk of serious morbidity or mortality. While pregnancy is a condition and not a disease, pregnancy is never elective, by its very nature. Justified prohibition of elective surgical procedures during the COVID-19 pandemic does not apply to scheduled obstetric surgical procedures, such as cesarean delivery. Bans on support persons during labor are contrary to recommendations made by national and international organizations, including WHO. No professional organizations have supported the alternative of homebirth to protect pregnant women from nosocomial COVID-19 infection. Human and material maternity resources should be ringfenced from redeployment that impairs the capacity of labor and delivery units to ensure that women and their newborns continue to receive the safest possible care. | Cancellation of elective procedures during the COVID-19 must not apply to obstetric services or impair the capacity of labor and delivery units to care for pregnant women and their newborns. | Grünebaum A, Dudenhausen J, McCullough LB, Chervenak FA. Women and children first: the need for ringfencing during the COVID-19 pandemic [published online, 2020 Apr 16]. J Perinat Med. 2020. doi:10.1515/jpm-2020-0149 |
| Children, age-related difference, clinical | 16-Apr-20 | Clinical Characteristics of COVID-19 in Children Compared | Infection | Original Paper | Sixty-seven hospitalized cases, including 53 adult and 14 children with COVID-19, between January 23, 2020 and February 15, 2020 from Jinan and Rizhao were enrolled in this study. Most children had mild clinical signs and symptoms, and all cases were of family clusters. Fever (35.7%) and dry | This study reports substantial lung injury, despite less clinical disease, in children | Du W, Yu J, Wang H, et al. Clinical characteristics of COVID-19 in children compared with adults in |

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| characteristics, lung injury, China | | With Adults in Shandong Province, China | | | cough (21.4%) were described as clinical manifestations in children. In the early stages of the disease, neutrophil count declined in children, compared with adults (p = 0.02). There was a lower level of CRP (p = 0.00) in children compared with adults. There were 8 (57.1%) asymptomatic cases and 6 (42.9%) symptomatic cases among the 14 children cases. The age of asymptomatic patients was younger than that of symptomatic patients (p = 0.03). Even among asymptomatic patients, 5 (62.5%) cases had lung injuries caused by COVID-19, including 3 (60%) cases with bilateral involvement, which was not different compared with that of symptomatic cases (p = 0.58, p = 0.74). The clinical symptoms of children are mild, there is substantial lung injury even among children, but that there is less clinical disease, perhaps because of a less pronounced inflammatory response. | with mild cases of COVID-19. | Shandong Province, China [published online, 2020 Apr 16]. Infection. 2020. doi:10.1007/s15010-020-01427-2 |
| Children, co-infection, respiratory pathogens, screening | 16-Apr-20 | Coinfection of SARS-CoV-2 and Multiple Respiratory Pathogens in Children | Clinical Chemistry and Laboratory Medicine | Letter | Authors report two cases of COVID-19 in children who were coinfected with human respiratory viruses and *Mycoplasma pneumoniae* (MP) in China. A total of 161 hospitalized children (≤14 years of age) with positive respiratory virus PCR results were enrolled in a retrospective study of respiratory infections in the pediatric ward of a tertiary hospital in Wuhan, China from December 1, 2019 to January 16, 2020. Nasopharyngeal swab, sputum or bronchoalveolar lavage fluid specimens were tested for respiratory viruses by RT-PCR or multiplex PCR combined with capillary electrophoresis. A total of 239 positive targets of pathogens were detected in 161 children. The highest proportion of pathogens were human respiratory syncytial virus (HRSV) (in 76 patients [31.80%]) and influenza A virus (in 72 patients [30.13%]). SARS-CoV-2 virus that causes COVID-19, was detected in two patients and accounted for 0.84%. SARS-COV-2, HRSV and human metapneumovirus (HMPV) were found in the bronchoalveolar lavage fluid of patient 1, and SARS-COV-2, MP and HMPV were found in the bronchoalveolar lavage fluid of patient 2. | This study indicates that co-infection of SARS-CoV-2 and other respiratory viral and bacterial pathogens occurs in children, who should be screened to prevent missed diagnosis and transmission of COVID-19. | Jiang S, Liu P, Xiong G, et al. Coinfection of SARS-CoV-2 and multiple respiratory pathogens in children [published online, 2020 Apr 16]. Clin Chem Lab Med. 2020. doi:10.1515/cclm-2020-0434 |
| Children, disease transmission, co-infection, cross-protection, viral load | 16-Apr-20 | The role of children in the transmission of mild SARS-CoV-2 infection. | Acta Paediatrica | Short Commentary | Authors respond to a systematic review published by Ludvigsson on SARS-CoV-2 infection in children and large age-related disparity in disease severity, which may be fundamental in filling knowledge gaps. Currently, it is not clear if children are important in transmitting SARS-CoV-2, like they are for other respiratory viruses. The majority of children infected thus far have a documented family cluster outbreak, suggesting that they might not play such an important role in disease transmission. In previous studies, the majority of children infected with human coronaviruses showed regular coinfection with other respiratory viruses. Children are also inoculated with antiviral vaccines due to immunization programs; there are multiple high-titer antibodies in the blood of children, which may offer cross-protection against progressive SARS-CoV-2 infection. Since only a small number of severe cases have involved children, and higher viral load is observed in critically ill patients, one could argue that when children are infectious, a lower viral load is transmitted compared to severely affected adults. | Children may play a smaller role in COVID-19 transmission based on evidence that suggests the children often have documented family cluster outbreaks, may have cross-protection from high-titer antibodies, and may transmit lower viral load compared to severely affected adults. | de Niet A, Waanders BL, Walraven I. The role of children in the transmission of mild SARS-CoV-2 infection [published online, 2020 Apr 16]. Acta Paediatr. 2020. doi:10.1111/apa.15310 |

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| Pediatric, onco-hematology clinic, screening, Italy | 16-Apr-20 | How we deal with the COVID-19 epidemic in an Italian pediatric onco-hematology clinic located in a region at high density of cases. | British Journal of Haema-tology | Letter | The first cases of the novel COVID-19 coronavirus in Italian patients, following the epidemic in China which began in December 2019, were reported on February 20, 2020. Since then, 15,362 deaths and over 124,632 positive cases have been registered at the time of writing. The concern for pediatric patients with onco-hematological diseases, particularly those actively undergoing chemotherapy or other immunosuppressing treatments, has led this group of authors to establish a series of measures aimed at minimizing infection. Since establishing these measures, over the course of 6 weeks, over 855 pediatric oncology patients were screened for COVID-19. No positive cases have been registered among these patients, as well as caregivers and hospital or clinic staff. In contrast, the frequency of positive nasopharyngeal swabs detected in the general population of the Veneto region is estimated to be 8.2%. | An Italian pediatric on-hematology clinic has established screening and infection control protocols. Of 855 pediatric oncology patients tested, no positive cases have been registered thus far. | Sainati L, Biffi A. How we deal with the COVID-19 epidemic in an Italian pediatric onco-hematology clinic located in a region at high density of cases [published online, 2020 Apr 16]. Br J Haematol. 2020. doi:10.1111/bjh.16699 |
| ACE2 receptor expression, maternal-fetal interface, fetal organs, placental function, single-cell transcriptome | 16-Apr-20 | The SARS-CoV-2 receptor ACE2 expression of maternal-fetal interface and fetal organs by single-cell transcriptome study. | PLOS ONE | Research Article | Angiotensin-converting enzyme 2 (ACE2) is now confirmed as the receptor of SARS-CoV-2 and plays essential roles in human infection and transmission. This study collects available single-cell RNA sequencing (scRNA-seq) data to evaluate the cell specific expression of ACE2 in the maternal-fetal interface, as well as in multiple fetal organs. Results revealed that ACE2 was highly expressed in maternal-fetal interface cells including stromal cells and perivascular cells of decidua, and cytotrophoblast and syncytiotrophoblast in placenta. Meanwhile, ACE2 was also expressed in specific cell types of human fetal heart, liver and lung, but not in kidney. In a study containing series fetal and post-natal mouse lung, ACE2 was dynamically changed over time, and ACE2 was extremely high in neonatal mice at post-natal day 1~3. Biophysical and structural evidence has shown that SARS-CoV-2 binds ACE2 with higher affinity than SARS-CoV, which suggests that SARS-CoV-2 might have more potential to attack placenta. It is crucial to pay special attention to pregnant women infected with SARS-CoV-2 in the early stage of pregnancy, during which the virus may affect the placental function and increase the risk of miscarriage. | This study reveals that the ACE2 receptor for SARS-CoV-2 viral entry is widely expressed in specific cell types of the maternal-fetal interface and fetal organs. The study calls for further investigation of vertical transmission potential and placental patho-physiology caused by SARS-CoV-2, especially in the first trimester of pregnancy. | Li M, Chen L, Zhang J, Xiong C, Li X. The SARS-CoV-2 receptor ACE2 expression of maternal-fetal interface and fetal organs by single-cell transcriptome study. PLoS One. 2020;15(4):e0230295. Published 2020 Apr 16. doi:10.1371/journal.pone.0230295 |
| Neonatal infection, viral RNA, South Korea | 16-Apr-20 | Sequential analysis of viral load in a neonate and her mother infected with SARS-CoV-2. | Clinical Infectious Diseases | Brief Report | This brief report describes changes in viral load over time in a 27-day old neonate with COVID-19 who presented with fever, cough, and vomiting. The virus seemed to be transmitted from one of her family members, and the neonate had been directly breastfed from birth. The neonate was hospitalized on March 8, 2020 and placed in an isolation room with her mother. SARS-CoV-2 RNA was detected in the neonate's nasopharynx, oropharynx, stool, saliva, plasma, and urine. Levels of viral RNA were highest in the nasopharynx, decreased over time, and were undetectable after 17 days from onset of symptoms. SARS-CoV-2 RNA in stool samples remained high until the 18th day since onset, even though the neonate's gastrointestinal symptoms had improved. The virus was not detected in the mother's breast milk. | Nasopharyngeal and stool samples from a neonate remained positive for SARS-CoV-2 until 17 and 18 days after symptom onset, respectively. Viral RNA was not detected in breast milk samples. | Han MS, Seong MW, Heo EY, et al. Sequential analysis of viral load in a neonate and her mother infected with SARS-CoV-2 [published online, 2020 Apr 16]. Clin Infect Dis. 2020. doi:10.1093/cid/ciaa447 |

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| Thymopoiesis, pro-inflammatory phenotype, age-related immune response, cytokine storm | 15-Apr-20 | Role of Thymopoiesis and Inflamm-Aging in COVID-19 Phenotype | Pediatrics and Neonatology | Letter to the Editor | The most important mechanisms underlying severe adult COVID-19 pneumonia cases are a reduction in CD4+ and CD8+ T cells and a decrease in regulatory T cells, likely due to the pro-inflammatory cytokine storm of TNF-alpha, IL-1, and IL-6 in COVID-19 patients. Furthermore, it is known that in older age, the production of naive T cells is severely impaired due to decreased output of lymphoid cells from the involution of the thymus, which is a central lymphoid organ. Thymopoiesis leads to the maturation of peripheral naive T cells with diverse recognition capacity against various microorganisms and subset of regulatory T cells to inhibit overactive immune responses. Inflamm-aging is defined as a progressive propensity toward a pro-inflammatory phenotype and plays a key role in immune system remodeling at older ages. Thus, the role of the thymus could be crucial in the modulation of the immune response to SARS-CoV-2, leading to a less severe phenotype in children compared to adult COVID-19 patients. | Thymic involution and increased pro-inflammatory markers are associated with older age and may contribute to immune responses that lead to greater clinical severity of COVID-19 in adults, compared to children. | Scarpa R, Costa L, Del Puente A, Caso F. Role of thymopoiesis and inflamm-aging in COVID-19 phenotype [published online, 2020 Apr 15]. Pediatr Neonatol. 2020. doi:10.1016/j.pedneo.2020.04.001 |
| Pediatric, asymptomatic infection, quarantine, Malaysia | 15-Apr-20 | COVID-19: Four Paediatric Cases in Malaysia | International Journal of Infectious Diseases | Case Series | In Malaysia, until end of February 2020, there were four COVID-19 pediatric cases with ages ranging from 20 months to 11 years. All four cases were likely to have contracted the virus in China. Two children were asymptomatic, and two children had mild respiratory symptoms. The cases were managed symptomatically. None required antiviral therapy. In caring for the infected children, two issues arose. First, the quarantine of an infected child with a parent who tested negative posed an ethical dilemma. Secondly, oropharyngeal and nasal swabs in children were at risk of false negative results (possibly due to sampling error). These issues have implications for infection control. Consequently, there is a need for clearer guidelines for child quarantine and testing methods in the management of COVID-19 in children. | This brief report describes four pediatric cases of mild COVID-19 in Malaysia and raises questions over the issues surrounding quarantine and infection control measures for children. | See KC, Liew SM, Ng DCE, et al. COVID-19: Four Paediatric Cases in Malaysia [published online, 2020 Apr 15]. Int J Infect Dis. 2020. doi:10.1016/j.ijid.2020.03.049 |
| Children, neonatal infection, systematic review, epidemiology | 15-Apr-20 | COVID-19 in Children: Current Status | Journal of the Chinese Medical Association | Special Invitation | This report from Taiwan reviews recently published articles and on-line open messages on SARS-CoV-2-positive infants and children <20 years old. Symptoms are usually less severe in children than in adults. Twelve critically or fatally ill children were found in publications or news reports globally, prior to April 6, 2020. Vertical transmission has not been proven definitively. However, six early-onset (<7 days) and 3 late-onset cases of neonatal SARS-CoV-2 infection were found in the literature. The presentation and contact information of 24 SARS-CoV-2-positive children, announced by the Taiwan Centers for Disease Control, are also summarized here. Early identification and isolation, adequate management, prevention, and vaccine development are the keys to controlling the disease spread. Clinical physicians should be alert to asymptomatic children with COVID-19. | Based on review of the existing literature, 12 children with critical cases of COVID-19, 6 cases of early-onset neonatal SARS-CoV-2 infection, and 3 cases of late-onset neonatal SARS-CoV-2 infection have been identified. | Jeng MJ. COVID-19 in children: Current status [published online, 2020 Apr 15]. J Chin Med Assoc. 2020. doi:10.1097/JCMA.0000000000000323 |
| Co-infection, respiratory pathogens, age-related difference, northern California | 15-Apr-20 | Rates of Co-infection Between SARS-CoV-2 and Other Respiratory Pathogens | JAMA | Research Letter | The CDC endorsed testing for other respiratory pathogens, suggesting that evidence of another infection could aid the evaluation of patients with potential COVID-19 in the absence of widely available rapid testing for SARS-CoV-2. Authors report on co-infection rates between SARS-CoV-2 and other respiratory pathogens, based on RT-PCR testing of nasopharyngeal swabs of symptomatic patients in Northern California. 1217 specimens were studied, and 116 (9.5%) were positive for SARS-CoV-2, and 318 (26.1%) were positive for 1 or more non-SARS-CoV-2 pathogens. Of 318 specimens positive for 1 or more non–SARS-CoV-2 pathogens, 24 (7.5%) were also positive for SARS- | Patients aged 1-100 were included in this study. Patients identified with co-infection did not differ significantly in age from those infected with SARS-CoV-2 only. Further study of the | Kim D, Quinn J, Pinsky B, Shah NH, Brown I. Rates of Co-infection Between SARS-CoV-2 and Other Respiratory Pathogens [published online, 2020 Apr 15]. JAMA. 2020. doi:10.1001/jama.2020.6266 |

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| | | | | | CoV-2. Patients with co-infections did not differ significantly in age (mean, 46.9 years) from those infected with SARS-CoV-2 only (mean, 51.1 years) (4.2-year difference [95% CI, –4.8 to 13.2]). | co-infection rates in children, in particular, is needed. | |
| Pregnancy, breastfeeding, therapeutic trials | 15-Apr-20 | Importance of inclusion of pregnant and breastfeeding women in COVID-19 therapeutic trials. | Clinical Infectious Diseases | Viewpoint | Investigators are employing unprecedented innovation in the design of clinical trials to rapidly and rigorously assess potentially promising therapies for COVID-19; this is in stark contrast to the continued, near universal, regressive practice of excluding pregnant and breastfeeding women from these trials. The few trials which allow their inclusion focus on post-exposure prophylaxis or outpatient treatment of milder disease, limiting the options available to pregnant women with severe COVID-19 to compassionate use of remdesivir, or off-label drug use of hydroxychloroquine or other therapies. These restrictions were put in place despite experience with these drugs in pregnant women. | This Viewpoint calls attention to the urgent need to engage pregnant women in COVID-19 treatment trials in order to develop data-driven recommendations regarding the risks and benefits of therapies in this unique population. | LaCourse SM, John-Stewart G, Adams Waldorf KM. Importance of inclusion of pregnant and breastfeeding women in COVID-19 therapeutic trials [published online, 2020 Apr 15]. Clin Infect Dis. 2020. doi:10.1093/cid/ciaa444 |
| Children, PICU, viral pneumonia, resource-limited settings | 15-Apr-20 | Novel Coronavirus 2019 (2019-nCoV) Infection: Part II - Respiratory Support in the Pediatric Intensive Care Unit in Resource-limited Settings. | Indian Pediatrics | Special Article | Use of high flow devices and non-invasive ventilation in COVID-19 positive patients has been discouraged due to high chances of aerosol generation and viral transmission. Early intubation and mechanical ventilation are essential to prevent complications and worsening, especially in resource-limited settings with very few centers having expertise to manage critical cases. A hydrophobic viral filter in the ventilator circuit can minimize risk of viral transmission. Strategies to manage ARDS in COVID-19 include low tidal volume ventilation with liberal sedation-analgesia. At the same time, prevention of transmission of the virus to healthcare workers is extremely important in the intensive care setting dealing with severe cases and requiring procedures generating aerosol. | This report provides further guidance on non-invasive respiratory support, intubation and management of ARDS in children with COVID-19 in PICUs in low-resource settings. | Sundaram M, Ravikumar N, Bansal A, et al. Novel Coronavirus 2019 (2019-nCoV) Infection: Part II - Respiratory Support in the Pediatric Intensive Care Unit in Resource-limited Settings. Indian Pediatr. 2020;57(4):335–342. |
| Children, PICU, viral pneumonia, resource-limited settings | 15-Apr-20 | Novel Coronavirus 2019 (2019-nCoV) Infection: Part I - Preparedness and Management in the Pediatric Intensive Care Unit in Resource-limited Settings | Indian Pediatrics | Special Article | The clinical course of COVID-19 often starts with a respiratory illness and about 5-16% of general patients require intensive care management for acute respiratory distress syndrome (ARDS) and multi-organ dysfunction. Children account for about 1-2% of the total cases. 6% of all pediatric cases fall under severe or critical categories, requiring pediatric intensive care unit (PICU) care. Diagnosis involves a combination of clinical and epidemiological features with laboratory confirmation. Preparedness strategies should involve setting up cohort ICUs with isolation rooms. Re-allocation of resources in managing this crisis involves careful planning, halting elective surgeries and training of healthcare workers. Strict adherence to infection control like personal protective equipment and disinfection is the key to contain the disease transmission. Although many therapies have been tried in various regions, there is a lack of strong evidence to recommend antivirals or immunomodulatory drugs. | This report provides guidelines on preparedness strategies to re-allocate resources and implement infection control protocols in low-resource settings. | Ravikumar N, Nallasamy K, Bansal A, et al. Novel Coronavirus 2019 (2019-nCoV) Infection: Part I - Preparedness and Management in the Pediatric Intensive Care Unit in Resource-limited Settings. Indian Pediatr. 2020;57(4):324–334. |
| Viral shedding, RT-PCR test, infectivity | 15-Apr-20 | SARS-CoV-2 shedding and infectivity | The Lancet | Correspondence | Authors of this correspondence argue that the presence of nucleic acid alone cannot be used to define viral shedding or infection potential. For many viral diseases (SARS-CoV, MERS-CoV, influenza virus, Ebola virus, and Zika virus), it is well known that viral RNA can be detected long after the disappearance of infectious virus. The immune system can neutralize viruses by lysing their envelope or aggregating virus particles; these processes prevent subsequent infection but do not eliminate nucleic acid, which | Recent literature has suggested there is prolonged SARS-CoV-2 viral shedding in children, however findings from studies that use PCR methods | Atkinson B, Petersen E. SARS-CoV-2 shedding and infectivity [published online, 2020 Apr 15]. Lancet. 2020. doi:10.1016/S0140-6736(20)30868-0 |

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| | | | | | degrades slowly over time. Although the use of sensitive PCR methods offers value from a diagnostic viewpoint, caution is required when using such data to assess the duration of viral shedding and infectivity because PCR does not distinguish between infectious virus and non-infectious nucleic acid. | to draw conclusions on infectivity should be interpreted with caution. | |
| Viral shedding, RT-PCR test, infectivity, viral culture | 15-Apr-20 | SARS-CoV-2 shedding and infectivity – Authors' reply | The Lancet | Correspondence | Replying to the correspondence by Atkinson et al., authors agree that the presence of SARS-CoV-2 viral RNA in a respiratory specimen cannot be directly interpreted as a potential for disease transmission and infection. That said, although viral culture is an important method to evaluate viral infectivity and activity, it is unavailable in clinical practice because of its low sensitivity and long turn-around time for virus detection. Two negative SARS-CoV-2 RNA PCR tests, at least 24 hours apart, was recommended by WHO as one of several criteria for discharge. Prolonged periods of detectable SARS-CoV-2 RNA suggest a sustained viral replication in some host cells in patients with COVID-19. A comparison has previously been made between viral shedding, as quantified by RT-PCR, and median tissue culture infectious dose (TCID50) in patients with influenza. The temporal changes in viral load by RT-PCR were similar to that of TCID50. For COVID-19, the association between viral load in respiratory tract specimens, quantified by RT-PCR, and viral culture needs evaluation. | Although a more accurate method of assessing viral infectivity, viral culture has low sensitivity and a long turn-around time. Future studies should evaluate the correlation between viral shedding, as quantified by RT-PCR, and infectious dose, as quantified by tissue culture of SARS-CoV-2. | Zhou F, Fan G, Liu Z, Cao B. SARS-CoV-2 shedding and infectivity – Authors' reply [published online, 2020 Apr 15]. Lancet. 2020. doi:10.1016/S0140-6736(20)30869-2 |
| Pregnancy, vaginal delivery, neonate, maternal-neonatal separation, breastfeeding, Australia | 15-Apr-20 | COVID-19 Vaginal Delivery - A Case Report | Australian and New Zealand Journal of Obstetrics and Gynaecology | Short Communication | This case report describes an uncomplicated vaginal birth in a SARS-CoV-2 positive mother at a tertiary Australian hospital. To the authors' knowledge, this is also the first case describing a mother with COVID-19 who was not separated from her infant. Management provided supports the current Royal College of Obstetricians and Gynaecologists and World Health Organization guidelines suggesting that it is possible to consider rooming in post-delivery for COVID-19 positive parents. Encouragement of breast feeding appears possible and safe when viral precautions are observed. | The SARS-CoV-2 positive mother described in this case study was not separated from her infant following birth. Breastfeeding was also encouraged with observation of hygiene precautions. | Lowe B, Bopp B. COVID-19 vaginal delivery - a case report [published online, 2020 Apr 15]. Aust N Z J Obstet Gynaecol. 2020. doi:10.1111/ajo.13173 |
| Infant, severe pneumonia, respiratory syncytial virus, China | 15-Apr-20 | Severe Pneumonia Due to SARS-CoV-2 and Respiratory Syncytial Virus Infection: A Case Report | Clinical Pediatrics | Case Report | A rare case of a 2-month 21-day old patient with co-infection of COVID-19 and respiratory syncytial virus (RSV) is reported in this study. The infant was admitted to the PICU of Maternal and Child Health Hospital of Hubei Province on February 3, 2020. On admission, the infant presented with cough and wheezing for 3 days, dyspnea for the past 12 hours, but no other signs of discomfort. Chest CT findings and arterial blood gas analysis indicated severe pneumonia, and non-invasive continuous positive airway pressure ventilation was performed. Antibiotic treatment, IV immunoglobulins, and methylprednisone were administered, and alpha-interferon atomization inhalation was performed. Thirty-six hours after admission, RT-PCR of a pharyngeal swab sample tested negative for SARS-CoV-2 but later tested positive on day 10, despite improved conditions. After consecutive negative RT-PCR results were obtained on days 17 and 19, the patient was discharged. | This case report describes atypical clinical presentation of a young infant co-infected with COVID-19 and RSV. | Shi B, Xia Z, Xiao S, Huang C, Zhou X, Xu H. Severe Pneumonia Due to SARS-CoV-2 and Respiratory Syncytial Virus Infection: A Case Report [published online, 2020 Apr 15]. Clin Pediatr (Phila). 2020. doi:10.1177/0009922820920016 |

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| Children, immune profile, clinical characteristics, age-related difference, T cell counts, C-reactive protein | 14-Apr-20 | The Clinical and Immunological Features of Pediatric COVID-19 Patients in China | Genes & Diseases | Full Length Article | The clinical features, immunological features, and treatment outcomes of 12 pediatric patients with confirmed COVID-19 were analyzed and compared with 20 adult patients. The median age was 14.5 years (range: 0.64 to 17 years), and 6 patients were male. The average incubation period was 8 days. Clinically, cough (9/12, 75%) and fever (7/12, 58.3%) were the most common symptoms. Four patients (33.3%) had diarrhea. Compared with adults, children had higher total T cell, CD8+ T cell and B cell counts but lower CRP levels ($p< 0.05$). Similar to adults, ground-glass opacities and local patchy shadowing were the typical radiological findings on chest CT scan. All patients received antiviral and symptomatic treatment, and symptoms improved within 3-4 days of hospital admission. Pediatric patients showed milder symptom but longer incubation periods than adults. | Compared to adults in this study, children with SARS-CoV-2 infection had an immune profile characterized by higher T cell counts and lower levels of inflammatory factors, which may be associated with milder clinical symptoms observed. | Chen J, Zhang ZZ, Chen YK, et al. The clinical and immunological features of pediatric COVID-19 patients in China [published online, 2020 Apr 14]. Genes Dis. 2020. doi:10.1016/j.gendis.2020.03.008 |
| Pregnancy, severe ARDS, intensive care, hypoxia | 14-Apr-20 | Severe ARDS in COVID-19-infected Pregnancy: Obstetric and Intensive Care Considerations | American Journal of Obstetrics & Gynecology MFM | COVID-19 Pregnancy Research | Few resources exist to guide the multi-disciplinary team through decisions regarding optimal maternal-fetal surveillance, intensive care procedures, and delivery timing. This report presents a case of rapid clinical decompensation and development of severe Acute Respiratory Distress Syndrome (ARDS) in a woman at 31 weeks' gestation. She presented to the emergency department with a 5-day history of worsening non-productive cough, shortness of breath, fever, and malaise. Chest CT scan was compatible with viral pneumonia, and SpO2 level of 93% on 4 liters/minute (L/min) warranted admission to the intensive care unit. After SpO2 levels decreased to 78%, maximal ventilatory assistance was applied, and both maternal and fetal status improved. Currently (hospital day 17 / COVID disease day 22), the patient is improving but continues on synchronized intermittent mandatory ventilation. | This case report describes rapid clinical decompensation and development of ARDS in a pregnant woman, highlighting physiologic and management considerations for the care of critically ill women with COVID-19. | Schnettler WT, Al Ahwel Y, Suhag A. Severe ARDS in COVID-19-infected pregnancy: obstetric and intensive care considerations [published online, 2020 Apr 14]. Am J Obstet Gynecol MFM. 2020. doi:10.1016/j.ajogmf.2020.100120 |
| Pregnancy, neonatal infection, anorectal sample, vaginal delivery | 14-Apr-20 | Pre-labor Anorectal Swab for SARS-CoV-2 in COVID-19 Patients: Is It Time to Think About It? | European Journal of Obstetrics & Gynecology and Repro-ductive Biology | Correspondence | To date, it is unknown whether vaginal delivery increases the risk of vertical transmission of COVID-19, since mainly cesarean deliveries have been reported. Current guidelines for pregnant women with confirmed COVID-19 suggest that delivery mode should be determined by obstetric indication, and vaginal delivery should be favored to avoid unnecessary surgical complications. However, the presence of SARS-CoV-2 in the genital tract and stool has been demonstrated in prior studies. Authors report a 28-year-old woman with gestational diabetes, who was admitted for active labor at 37 weeks' gestation. A nasopharyngeal swab taken at admission tested positive for SARS-CoV-2. Three hours later, a female neonate was delivered by vaginal route and quarantined. Post-delivery, maternal rectal and stool swabs, as well as neonatal nasopharyngeal swab tested positive for SARS-CoV-2. Further RT-PCR was performed on the same neonatal nasopharyngeal swab 37 hours later and tested negative, likely explained by the low amount of viral RNA in the sample. To reduce the potential risk of vertical transmission, a pre-labor anorectal swab could be taken from COVID-19 positive pregnant patients to identify newborns at high risk of perinatal infection. | This case report suggests that SARS-CoV-2 can enter the neonatal nasopharynx during vaginal delivery through fecal contamination, especially when recent onset of COVID-19 symptoms is reported in the mother. | Carosso A, Cosma S, Borella F, et al. Pre-labor anorectal swab for SARS-CoV-2 in COVID-19 patients: is it time to think about it? [published online, 2020 Apr 14]. Eur J Obstet Gynecol Reprod Biol. 2020. doi:10.1016/j.ejogrb.2020.04.023 |

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| Pregnancy, neonates, TORCH infection, SARS, MERS, vertical transmission | 14-Apr-20 | SARS-CoV-2: Is it the Newest Spark in the TORCH? | Journal of Clinical Virology | Review | Data are limited on outcomes of COVID-19 disease during pregnancy and consequences for fetuses and newborns. Therefore, information on illnesses associated with other highly pathogenic coronaviruses (i.e. SARS, MERS), as well as comparisons to common congenital infections, such as cytomegalovirus (CMV), are warranted. Research regarding the potential routes of acquisition of SARS-CoV-2 infection in the prenatal and perinatal setting is of a high public health priority. Breast milk acquisition of infection has not been recognized to date, and strategies to ensure that this remains the preferred source of infant nutrition are needed. Vaccines targeting women of reproductive age, and in particular pregnant patients, should be evaluated in clinical trials and should include the endpoints of neonatal infection and disease. | Authors consider limited data on COVID-19 in pregnancy in the context of SARS, MERS, and common congenitally or perinatally acquired TORCH infections, like CMV. | Muldoon KM, Fowler KB, Pesch MH, Schleiss MR. SARS-CoV-2: Is it the newest spark in the TORCH? [published online, 2020 Apr 14]. J Clin Virol. 2020. doi:10.1016/j.jcv.2020.104372 |
| Children, comorbidities, vertical transmission, community transmission, treatment, breastfeeding | 14-Apr-20 | The Intriguing Features of COVID-19 in Children and Its Impact on the Pandemic | Jornal de Pediatria | Editorial | One of the most striking and consistent findings from COVID-19 reports globally is that, in contrast with infected adults, children rarely experience severe forms of the disease. Available data on COVID-19 severity in children with comorbidities are scarce, limiting the possibility to identify conditions at increased risk of complications and mortality. Although at this time we do not know whether mothers with COVID-19 can transmit the SARS-CoV-2 via breast milk, the WHO, as well as the Brazilian Society of Pediatrics, made clear recommendations supporting mothers to breastfeed their infants. A crucial point for investigation – yet to be determined – is the role of children in transmission. Despite being asymptomatic or oligosymptomatic, infected infants and children may have high viral loads in their nasopharynx, as well as fecal shedding of SARS-CoV-2 for longer periods, thus may play a substantial role in viral community transmission. At the time of writing, treatment in children includes fluid and nutritional intake, together with oxygen supplementation and ventilatory support. Due to the rare number of severe cases in children, there is no data on the safety and efficacy of the different therapeutic interventions that are being tested in adults. | This editorial provides an overview of current literature on notable findings related to COVID-19 in children, highlighting current gaps in data. | Safadi MAP. The intriguing features of COVID-19 in children and its impact on the pandemic [published online, 2020 Apr 14]. J Pediatr (Rio J). 2020. doi:10.1016/j.jped.2020.04.001 |
| Epidemiology, population screening, children under 10 years old, Iceland | 14-Apr-20 | Spread of SARS-CoV-2 in the Icelandic Population | New England Journal of Medicine | Original Article | During the current worldwide pandemic, COVID-19 was first diagnosed in Iceland at the end of February 2020. As of April 4, a total of 1221 of 9199 (13.3%) who were recruited for targeted testing in this study had positive results for SARS-CoV-2 infection, based on RT-PCR testing of combined oropharyngeal and nasopharyngeal samples. Of those tested in the general population, 87 (0.8%) in the open-invitation screening and 13 (0.6%) in the random-population screening tested positive for the virus. In total, 6% of the population was screened. Of the 564 children under the age of 10 years in the targeted testing group, 38 (6.7%) tested positive, in contrast to positive test results in 1183 of 8635 persons who were 10 years of age or older (13.7%). In the population-screening group, the difference was even more marked: none of the 848 children under the age of 10 years tested positive, as compared with 100 of 12,232 persons (0.8%; 95% CI, 0.7 - 1.0%) 10 years of age or older. This report provides the most accurate and complete national epidemiological data published to date. | This epidemiological report shows lower incidence of SARS-CoV-2 in children under 10 years of age in Ireland, raising the question of utility for routine testing of asymptomatic children in the general population. | Gudbjartsson DF, Helgason A, Jonsson H, et al. Spread of SARS-CoV-2 in the Icelandic Population [published online, 2020 Apr 14]. N Engl J Med. 2020. doi:10.1056/NEJMoa2006100 |

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| Children, chest CT, lung abnormalities, radiation risk | 14-Apr-20 | CT Features of Novel Coronavirus Pneumonia (COVID-19) in Children | European Radiology | Review | There is growing evidence that children are also susceptible to COVID-19 and have atypical presentations compared with adults. This review found that chest CT characteristics in pediatric patients with COVID-19 were also atypical, with more localized ground glass opacity (GGO) extent, lower GGO attenuation, and relatively rare interlobular septal thickening. Relying only on chest CT to screen pediatric patients may lead to missed diagnosis. In addition, chest CT should be used with caution to protect children from unnecessary radiation risk. | Chest CT should be used with caution to avoid missed diagnoses as well as reduce risk of unnecessary radiation for children. | Duan YN, Zhu YQ, Tang LL, Qin J. CT features of novel coronavirus pneumonia (COVID-19) in children [published online 2020 Apr 14]. Eur Radiol. 2020. doi:10.1007/s00330-020-06860-3 |
| Pediatric otolaryngology, preparatory response, Seattle, Washington | 14-Apr-20 | Pediatric Otolaryngology Divisional and Institutional Preparatory Response at Seattle Children's Hospital After COVID-19 Regional Exposure | Otolaryn-gology–Head and Neck Surgery | Commentary | The role children and adolescents play in COVID-19 transmission is unclear, and it is possible that healthy pediatric patients serve as a reservoir for the virus. This article summarizes the COVID-19 response of Seattle Children's Hospital in Washington State, with the goal of protecting both patients and health care providers while providing ongoing care to critically ill patients who require urgent interventions. Main interventions included reduced staff presence at hospital, backup call systems, postponement of all elective cases, conversion to telemedicine visits when possible, use of COVID-19 testing and full PPE for high-risk procedures, and creating new educational content for trainees. | A report from Seattle Children's Hospital describes an institutional response to COVID-19, with the goals of preventing infection spread and protecting the health care workforce. | Parikh SR, Bly RA, Bonilla-Velez J, et al. Pediatric Otolaryngology Divisional and Institutional Preparatory Response at Seattle Children's Hospital after COVID-19 Regional Exposure [published online 2020 Apr 14]. Otolaryngol Head Neck Surg. 2020. doi:10.1177/0194599820919748 |
| Micronutrients, antioxidants, vitamin D, zinc, immune function | 14-Apr-20 | Nutritional Recommen-dations for CoVID-19 Quarantine | European Journal of Clinical Nutrition | Perspective | Antioxidants have been shown to increase the number of T-cell subsets, enhance lymphocyte response to mitogens, increase interleukin-2 production, potentiate natural killer cell activity, and increase response to the influenza virus vaccine compared with placebo. Notably, vitamin D deficiency in the winter has been reported to be associated to viral epidemics. Indeed, adequate vitamin D status reduces the risk of developing several chronic diseases such as cancers, cardiovascular disease, diabetes mellitus, and hypertension that contribute to higher risk of death from respiratory tract infections. Further, vitamin D protects the respiratory tract by preserving tight junctions, killing enveloped viruses through induction of cathelicidin and defensins, and decreasing production of proinflammatory cytokines by the innate immune system, therefore reducing the risk of a cytokine storm leading to pneumonia. Another essential trace element that is crucial for the maintenance of immune function is zinc. It has been reported that zinc inhibits the RNA-dependent RNA polymerase template binding and elongation of SARS virus, thus blocking viral replication in cell cultures. | Vitamin D plays an important role in protecting against respiratory viral pathogens, as well as decreasing production of pro-inflammatory cytokines to reduce risk of a cytokine storm. Zinc has also been shown to inhibit viral replication of SARS in cell cultures; its properties should be further evaluated in the context of COVID-19. | Muscogiuri G, Barrea L, Savastano S, Colao A. Nutritional recommendations for CoVID-19 quarantine [published online, 2020 Apr 14]. Eur J Clin Nutr. 2020. doi:10.1038/s41430-020-0635-2 |
| Infant, cystic fibrosis, asymptomatic infection, Italy | 13-Apr-20 | Asymptomatic Case of Covid-19 in an Infant With Cystic Fibrosis | Journal of Cystic Fibrosis | Letter | To date, only one adult case with mild symptoms of COVID-19 has been reported in Italian patients affected by Cystic Fibrosis (CF). This letter reports a case of COVID-19 in a 1-month-old male infant with positive newborn screening for CF. Due to close contact with his grandfather who was later hospitalized for COVID-19, the infant was found positive for asymptomatic infection, diagnosed by RT-PCR on nasopharyngeal swab. The patient never developed fever or any signs of infection, in accordance with the low incidence and good outcomes of SARS-CoV-2 infection in children. | This letter reports the first case of asymptomatic SARS-CoV-2 infection in an infant with CF, in Italy. | Poli P, Timpano S, Goffredo M, et al. Asymptomatic case of Covid-19 in an infant with cystic fibrosis [published online, 2020 Apr 13]. J Cyst Fibros. 2020. doi:10.1016/j.jcf.2020.03.017 |

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| Infant, intercostal retraction, oxygen hood, Iran | 13-Apr-20 | The First Case of COVID-19 Infection in a 75-day-old Infant in Jahrom City, South of Iran | Journal of the Formosan Medical Association | Correspondence | The presented case is a 75-day-old infant that was referred to the pediatric emergency department, with a history of severe dry cough, abnormal noisy breathing, and fever. On arrival, the infant had a respiratory rate of 50 breaths per minute, a temperature of 37.6 centigrade, pulse rate of 172 and oxygen saturation of 85%. On physical examination, an intercostal retraction was seen, and lung auscultation revealed diminished wheezing and rales on both sides. Oxygen saturation and intercostal retraction improved under the oxygen hood. Two hours after the patient's arrival, CT scans showed bilateral peripheral consolidation with a ground glass view. Authors do not mention use of RT-PCR testing to confirm this clinical diagnosis of COVID-19. | This report describes the first case of infant infection, seemingly based on clinical diagnosis, in Iran. | Mogharab V, Pasha AMK, Javdani F, Hatami N. The first case of COVID-19 infection in a 75-day-old infant in Jahrom City, south of Iran [published online, 2020 Apr 13]. J Formos Med Assoc. 2020. doi:10.1016/j.jfma.2020.03.015 |
| Pediatric airway management, anesthesia, intubation, consensus guidelines | 13-Apr-20 | Pediatric Airway Management in COVID-19 patients – Consensus Guidelines | Anesthesia & Analgesia | Report | The Pediatric Difficult Intubation Collaborative (PeDI-C), which currently includes 35 hospitals from six countries, generated consensus guidelines on airway management in pediatric anesthesia based on expert opinion and early data about the disease. Overarching goals include minimizing aerosolized respiratory secretions, minimizing the number of clinicians in contact with a patient, and recognizing that undiagnosed asymptomatic patients may shed the virus and infect healthcare workers. Recommendations include administering anxiolytic medications, intravenous anesthetic inductions, tracheal intubation using video laryngoscopes and cuffed tracheal tubes, use of in-line suction catheters, and modifying workflow to recover patients from anesthesia in the operating room. | This collaborative of hospitals has developed recommendations for airway management in pediatric patients with COVID-19. | Matava CT, Kovatsis PG, Summers JL, et al. Pediatric Airway Management in COVID-19 patients - Consensus Guidelines [published online, 2020 Apr 13]. Anesth Analg. 2020. doi:10.1213/ANE.0000000000004872 |
| Neonates, clinical characteristics, vertical transmission, breast milk samples, China | 13-Apr-20 | Clinical Characteristics of 19 Neonates Born to Mothers With COVID-19 | Frontiers in Medicine | Research Article | Nineteen neonates were admitted to Tongji Hospital from January 31 to February 29, 2020. Among them, 9 mothers were clinically diagnosed with COVID-19, and 10 mothers had confirmed infection based on RT-PCR testing of throat swab samples. All deliveries occurred in an isolation room, and neonates were immediately separated from their mothers, for at least 14 days. No fetal distress was found. Mean gestational age of the neonates was 38.6 ± 1.5 weeks, and mean birth weight was 3293 ± 425 g. SARS-CoV-2 RT-PCR test results for throat swab, urine, and feces samples of all neonates were negative following birth. RT-PCR test results for breast milk and amniotic fluid samples were also negative. None of the neonates developed clinical, radiologic, hematologic, or biochemical evidence of COVID-19. No vertical transmission of SARS-CoV-2 and no perinatal complications in the third trimester were found. | No evidence of vertical transmission was found in this cohort of 19 neonates born to mothers with clinically diagnosed or laboratory-confirmed COVID-19. Amniotic fluid, cord blood, and breast milk samples all tested negative for SARS-CoV-2. | Liu W, Wang J, Li W, Zhou Z, Liu S, Rong Z. Clinical characteristics of 19 neonates born to mothers with COVID-19 [published online, 2020 Apr 13]. Front Med. 2020. doi:10.1007/s11684-020-0772-y |
| Infant, febrile, non-specific symptoms, respiratory viruses, United States | 13-Apr-20 | Febrile Infant: COVID-19 in Addition to the Usual Suspects | The Pediatric Infectious Disease Journal | Letter to the Editor | This letter describes a previously healthy, fully vaccinated, late preterm, 58-day-old male who presented with fever in Staten Island University Hospital, New York. There was no respiratory distress, cough, decreased intake, decreased frequency of wet diapers, sick contacts, or travel. Chest X-ray was normal. Rapid flu, respiratory syncytial virus and respiratory viral panel were negative, and a COVID-19 test was performed. The patient was treated with one dose of intramuscular ceftriaxone and acetaminophen for fever. Eighteen hours after admission, the patient was afebrile and was discharged. His COVID-19 test results came back positive 24 hours later. This case demonstrates that presentation of COVID-19 is non-specific and easily attributed to many etiologies. Despite being in the highest risk sub-group of children, the patient in this report recovered quickly. | This case demonstrates that young infants with COVID-19 may present with non-specific symptoms. Providers must consider COVID-19 in infants with fever and minimal other findings or historical risk factors. | Robbins E, Ilahi Z, Roth P. Febrile Infant: COVID-19 in Addition to the Usual Suspects [published online, 2020 Apr 13]. Pediatr Infect Dis J. 2020. doi:10.1097/INF.0000000000002693 |

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| Pregnancy, neonates, pulmonary CT, China | 12-Apr-20 | Clinical Features and Outcomes of Pregnant Women Suspected of Coronavirus Disease 2019 | Journal of Infection | Original Research | The purpose of this study is to investigate the clinical features, imaging findings, laboratory indicators and outcomes of maternal-fetal cases of 55 pregnant women with suspected COVID-19, who gave birth at a tertiary care hospital in Wuhan, China between January 23 to March 5, 2020. Of 55 total suspected cases, the confirmed COVID-19 group contained 13 patients, and the control group contained 42 patients. There were 2 patients with prenatal fever and 8 patients with postpartum fever in the confirmed COVID-19 group, in contrast with 11 prenatal fever patients and 20 postpartum fever patients in the control group ($p$<0.05). Pulmonary CT images in the confirmed COVID-19 group were non-specific and showed no statistical difference from those of the control group. In total, 57 neonates were delivered, and 20 were tested for SARS-CoV-2 using throat swab samples. All tested negative. | There were no statistically significant differences in pulmonary CT findings between pregnant women with and without confirmed COVID-19. Of 20 neonates with suspected infection, all tested negative for SARS-CoV-2 within 24 hours after birth. | Yang H, Sun G, Tang F, et al. Clinical Features and Outcomes of Pregnant Women Suspected of Coronavirus Disease 2019 [published online, 2020 Apr 12]. J Infect. 2020. doi:10.1016/j.jinf.2020.04.003 |
| Children, gastro-intestinal tract, ACE-2 receptor, TMPRSS2, inflammatory bowel disease, post-liver transplant, chronic liver disease | 12-Apr-20 | Coronavirus Disease (COVID-19) and the Gastrointestinal System in Children | Indian Pediatrics | Special Article | Although SARS-CoV-2 is primarily a respiratory pathogen, it can also involve the gastrointestinal tract. Similar to the respiratory mucosa, angiotensin converting enzyme-2 (ACE-2) receptors and transmembrane serine protease 2 (TMPRSS2) are co-expressed in the gastrointestinal tract, which facilitates viral entry into the tissue. Less than 10% of children with infection develop diarrhea and vomiting. Prolonged RT-PCR positivity in the stool of children has raised the possibility of fecal-oral transmission. Elevated transaminases are common, especially in those with severe COVID-19 disease. Children with inflammatory bowel disease and post liver transplant patients do not have an increased risk of disease and should remain on medications they are already on. Children with chronic liver disease should continue their medications as usual. All elective procedures like endoscopy should be postponed. | This article summarizes available data on COVID-19 involvement of the gastrointestinal (GI) tract in children, including pathogenesis, clinical markers, and implications for children with underlying GI conditions. | Matthai J, Shanmugam N, Sobhan P; Indian Society Of Pediatric Gastroenterology, Hepatology And Nutrition; Pediatric Gastroenterology Chapter Of Indian Academy Of Pediatrics. Coronavirus Disease (COVID-19) and the Gastrointestinal System in Children [published online, 2020 Apr 12]. Indian Pediatr. 2020;S097475591600162. |
| Children, comorbidities, high-risk pediatric population, guidelines | 12-Apr-20 | We Urgently Need Guidelines for Managing COVID-19 in Children With Comorbidities | Acta Paediatrica | Letter | This letter emphasizes noteworthy conclusions drawn from the systematic review by Ludvigsson on COVID-19 in children, published on March 23, 2020: In early data from China, children only accounted for 1-5% of cases, with low progression to severe or critical conditions requiring intensive care. Overall mortality rate was low, at about 0.18% compared to 4.3% in adults. However, an increased risk of critical disease and mortality has been observed in infants and younger children, particularly those with underlying comorbidities, such as hydronephrosis, leukemia, intussusception, and lacrimal sac dredge. Special management of children with pre-existing chronic conditions (e.g. diabetes, adrenal insufficiency, chronic renal failure, chronic pulmonary disorders, cancers, immune deficiencies, and chronic neurological disorders) will be necessary to minimize their risk of progression to critical disease or death. | This letter calls for a pediatric task force to develop and disseminate guidelines on managing high-risk pediatric patients with COVID-19. | Dayal D. We urgently need guidelines for managing COVID-19 in children with comorbidities [published online, 2020 Apr 12]. Acta Paediatr. 2020. doi:10.1111/apa.15304 |
| Pregnancy, neonate, vertical transmission, breast milk samples | 11-Apr-20 | Unlikely SARS-CoV-2 Vertical Transmission From Mother to Child: A Case Report | Journal of Infection and Public Health | Case Report | Though some studies indicated the risk of vertical transmission of SARS-CoV-2 infection is low, few cases have been reported with comprehensive serial tests from multiple specimens. In this case, a female preterm infant was born to a mother with confirmed COVID-19. The infant presented with mild respiratory distress and received general management and a short period of nasal continuous positive airway pressure support. During her stay at the hospital, a series of SARS-CoV-2 nucleic acid tests from her serum, throat and anal swabs, bronchoalveolar lavage fluid, and urine were negative. | Authors state that vertical transmission of COVID-19 is unlikely but advise caution, until further evidence from epidemiological surveillance and experiment studies on | Peng Z, Wang J, Mo Y, et al. Unlikely SARS-CoV-2 vertical transmission from mother to child: A case report [published online, 2020 Apr 11]. J Infect Public Health. 2020. |

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| | | | | | Nucleic acid tests of the mother's amniotic fluid, vaginal secretions, cord blood, placenta, serum, anal swab, and breast milk were also negative. The most comprehensively tested case reported to date confirmed that the vertical transmission of COVID is unlikely, but still, more evidence is needed. | transmission potential through birth canal contact and breast milk is available. | doi:10.1016/j.jiph.2020.04.004 |
| Neonatal infection, vertical transmission, breastfeeding, neonatal providers, respiratory strategies, Brazil | 11-Apr-20 | Neonatal COVID-19: Little Evidence and the Need for More Information | Jornal de Pediatria | Editorial | The lack of high-quality evidence on neonatal SARS-CoV-2 infection and the steadfast pace of new and conflicting information has been an overall challenge to neonatal intensive care. Internationally and nationally in Brazil, a number of important groups have been diligently working on the development of protocols and guidelines for the neonatal COVID-19 outbreak. Given the constant updating and some conflicting information, health care providers face difficulties in determining best local guidelines. This editorial outlines what is currently known about neonatal infection, vertical transmission, what neonatal health care providers should do about COVID-19, how to provide overall care after birth (including notes on supporting breastfeeding), and respiratory strategies. | Brazilian authors compile existing information on how to care for neonates with SARS-CoV-2 infection, from a variety of national and international sources. | Procianoy RS, Silveira RC, Manzoni P, Sant'Anna G. Neonatal COVID-19: little evidence and the need for more information [published online, 2020 Apr 11]. J Pediatr (Rio J). 2020. doi:10.1016/j.jped.2020.04.002 |
| Pregnancy, fetuses, neonates, classification system, case definition, congenital infection, intrapartum, postpartum | 11-Apr-20 | Classification system and case definition for SARS-CoV-2 infection in pregnant women, fetuses, and neonates | Acta Obstetricia et Gynecolo-gica Scandinavica | Special Editorial | Current studies on intrauterine transmission of COVID-19 from mother to fetus or intrapartum transmission from mother to neonate are limited by the sensitivity and specificity of diagnostic tests used, as well as questionable classification of patients based on results. Differing recommendations have emerged regarding which samples should be collected and when, and how to distinguish infection from contamination. In addition, the fact that a significant proportion of maternal and neonatal infections can be asymptomatic creates difficulty in ascertaining the disease burden. Authors present a system that could aid healthcare practitioners in evaluating patients, determining appropriate infection control measures, planning appropriate follow-up for neonates and infants, allowing large epidemiological studies and helping collaboration between international efforts to learn about potential effects of maternal infection. This classification system provides case definitions, based on specified COVID-19 test results, for the following scenarios: maternal infection during pregnancy, congenital infection with intrauterine fetal death/stillbirth, congenital infection in live born neonate, neonatal infection acquired intrapartum, and neonatal infection acquired postpartum. | This paper presents a classification scheme that specifies criteria for the likelihood of infection in different perinatal scenarios. | Shah PS, Diambomba Y, Acharya G, Morris SK, Bitnun A. Classification system and case definition for SARS-CoV-2 infection in pregnant women, fetuses, and neonates [published online, 2020 Apr 11]. Acta Obstet Gynecol Scand. 2020. doi:10.1111/aogs.13870 |
| Infection cluster, pediatric transmission dynamics, coinfection, French Alps | 11-Apr-20 | Cluster of Coronavirus Disease 2019 (Covid-19) in the French Alps, 2020 | Clinical Infectious Diseases | Case Study | In this cluster, 12 Covid-19 cases (one asymptomatic) were linked to a single index case. 172 contacts were monitored, including 73 who tested negative for SARS-CoV-2. SARS-CoV-2 was detected in one child, co-infected with picornavirus and influenza A, visited three schools while symptomatic, but did not transmit the virus. This suggests potentially different transmission dynamics in children. In addition, the potential dissociation between upper and lower respiratory tract results, possibly related to the distribution of virus receptors and compartmentalization of infection over time, underscore the risk for missed diagnosis and the need for close monitoring of the clinical evolution and screening of suspected COVID-19 cases. | In this cluster, a symptomatic child with COVID-19 did not transmit the virus to others despite close interactions at three different schools. Transmission dynamics of COVID-19 may be different in children. | Danis K, Epaulard O, Bénet T, et al. Cluster of coronavirus disease 2019 (Covid-19) in the French Alps, 2020 [published online, 2020 Apr 11]. Clin Infect Dis. 2020;ciaa424. doi:10.1093/cid/ciaa424 |

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| Children, clinical characteristics, family cluster, fecal viral shedding, China | 10-Apr-20 | Epidemiologic and Clinical Characteristics of 10 Children With Coronavirus Disease 2019 in Changsha, China | Journal of Clinical Virology | Case Series | In this retrospective study, 10 children with SARS-COV-2 infection were recruited from January 27 to March 10, 2020, in Changsha, China. Three were male and seven were female. Three were from Wuhan, Hubei Province, and seven were from Changsha. All had a history of close contact with adults with COVID-19 before the onset of disease. Clinical manifestations included fever in four cases, respiratory symptoms in three cases, febrile convulsions in one case, vomiting in one case, abdominal pain in one case, and asymptomatic infection in two cases. All the children tested positive for nucleic acid in throat swabs at admission. Stool swabs of three cases were positive for nucleic acid after several days of fever. In nine children, blood routine results were normal, whereas in one case the white blood cell count was elevated. In four cases, CT findings of the lungs showed light ground-glass opacities, one case showed changes similar to bronchopneumonia, and the remaining cases were normal. All were treated with symptomatic support without complications. | Findings from this report indicate that intrafamily transmission may be the main form of transmission of COVID-19 in children. Persistent intestinal excretion of viral nucleic acid was also observed; results from stool swab tests should be considered for discharge and release from isolation. | Tan YP, Tan BY, Pan J, Wu J, Zeng SZ, Wei HY. Epidemiologic and clinical characteristics of 10 children with coronavirus disease 2019 in Changsha, China [published online, 2020 Apr 10]. J Clin Virol. 2020. doi:10.1016/j.jcv.2020.104353 |
| Pregnancy, neonatal infection, clinical characteristics, vertical transmission | 10-Apr-20 | Clinical Characteristics and Risk Assessment of Newborns Born to Mothers With COVID-19 | Journal of Clinical Virology | Case Series | Authors prospectively collected and analyzed the clinical features, laboratory data and outcomes of 7 newborns delivered by SARS-CoV-2 infected pregnant women in Zhongnan Hospital of Wuhan University during January 20 to January 29, 2020. 4 of the 7 newborns were late preterm with gestational age between 36 weeks and 37 weeks, and the other 3 were full-term infants. The average birth weight was 2096 ± 660 g. All newborns were born without asphyxia. 2 premature infants performed mild grunting after birth, but relieved rapidly with non-invasive continuous positive airway pressure (nCPAP) ventilation. 3 cases had chest X-ray, 1 was normal and 2 who were supported by nCPAP presented mild neonatal respiratory distress syndrome. There were no positive qRT-PCR results for SARS-CoV-2 nucleic acid in pharyngeal swab samples from 6 cases and amniotic fluid and umbilical cord blood from 4 cases. Current data show that the infection of SARS-CoV-2 in women who are in late pregnancy does not cause adverse neonatal outcomes. However, the authors state it is necessary to separate newborns from mothers immediately to avoid potential risks. | There is no current evidence supporting the vertical transmission of SARS-CoV-2 infection from mother to neonate. Neonatal pharyngeal swabs, amniotic fluid, and umbilical cord blood tested negative for viral nucleic acid in this study. | Yang P, Wang X, Liu P, et al. Clinical characteristics and risk assessment of newborns born to mothers with COVID-19 [published online, 2020 Apr 10]. J Clin Virol. 2020. doi:10.1016/j.jcv.2020.104356 |
| Children, mass vaccination, measles, poliomyelitis | 10-Apr-20 | Pandemic Brings Mass Vaccinations to a Halt | Science | In Depth: Global Health | In efforts to stop the spread of COVID-19, mass vaccination campaigns against a host of diseases are now grinding to a halt in many countries. Some 13.5 million have already missed out on vaccinations for polio, measles, human papillomavirus, yellow fever, cholera, and meningitis since the suspensions began. The fallout may last long after the pandemic subsides. In the case of polio, the postponement announced by the Global Polio Eradication Initiative, on March 24, 2020, imperils the success of a 3-decade eradication campaign that was already in trouble. On March 26, WHO's Strategic Advisory Group of Experts on Immunization issued a broader call, recommending that countries stop mass vaccination campaigns against all vaccine-preventable diseases. Twenty-three countries have already suspended their measles campaigns, and as a result, 78 million children will miss out on the vaccine. In poor countries, the virus can kill 3% to 6% of those it infects, with malnourished children especially at risk. WHO, GAVI, and other health organizations stress that routine immunization of individual children at clinics must continue as much as possible during the pandemic. | Due to social distancing orders, the suspension of mass vaccination campaigns for highly contagious diseases, including measles and polio, place children, especially those who are malnourished, at risk. | Roberts L. Pandemic brings mass vaccinations to a halt. Science. 2020;368(6487):116–117. doi:10.1126/science.368.6487.116 |

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| Pregnancy, place of birth, planned community birth | 10-Apr-20 | Current Resources for Evidence-Based Practice, May 2020 | Journal of Obstetric, Gynecologic & Neonatal Nursing | Special Report | This report presents a review of resources to support the provision of evidence-based care for women and infants, including discussion of a new National Academy of Medicine report on planned place of birth and implications during the SARS-CoV-2 pandemic. Planned community birth should be considered as a safe alternative to delivery in currently overwhelmed hospitals. | This letter discusses the potential value of planned community birth during a time when hospitals and medical staff are overwhelmed. | Bovbjerg ML. Current Resources for Evidence-Based Practice, May 2020 [published online, 2020 Apr 10]. J Obstet Gynecol Neonatal Nurs. 2020. doi:10.1016/j.jogn.2020.04.001 |
| Pregnancy, mortality, pre-term delivery, cyanotic fetus, Iran | 10-Apr-20 | Mortality of a Pregnant Patient Diagnosed With COVID-19: A Case Report With Clinical, Radiological, and Histopathological Findings | Travel Medicine and Infectious Disease | Case Report | A 27-year-old Iranian woman at 30 and 3/7 weeks gestation was hospitalized after presenting with fever, myalgia, and cough. Lab results showed leukopenia and lymphopenia as well as increased creatinine and CRP levels. The first chest X-ray (faint bilateral patchy opacities) and CT scan (some faint subpleural ground-glass opacities associated with pleural thickening) were not typical for initial COVID-19 pulmonary infection, nevertheless, treatment for COVID-19 was started. Due to respiratory distress, she was intubated and put under mechanical ventilation. Following spontaneous contractions, a cyanotic fetus was delivered vaginally with an Apgar score of 0 and did not react to neonatal cardiopulmonary resuscitation. After deteriorating clinically, the female patient died due to multi-organ failure. An autopsy was performed, and histopathologic evaluation of the lungs showed evidence of viral pneumonia (viral cytopathic effect and a mild increase in alveolar wall thickness) and ARDS (hyaline membrane). RT-PCR testing also confirmed SARS-CoV-2 infection in the lungs. To our knowledge, this is the first report of maternal death with confirmed COVID-19 infection. | To the authors' knowledge, this is the first report of death in a pregnant woman with confirmed COVID-19 infection. The woman died due to multi-organ failure, after delivering a cyanotic fetus, who did not survive. | Karami P, Naghavi M, Feyzi A, et al. Mortality of a pregnant patient diagnosed with COVID-19: A case report with clinical, radiological, and histopathological findings [published online, 2020 Apr 10]. Travel Med Infect Dis. 2020. doi:10.1016/j.tmaid.2020.101665 |
| Children, PICU, hospitalization, cumulative case projections, United States | 10-Apr-20 | COVID-19 in Children in the United States: Intensive Care Admissions, Estimated Total Infected, and Projected Numbers of Severe Pediatric Cases in 2020 | Journal of Public Health Manage-ment & Practice | Original Article | The objective of this empirical case projection study is to provide evidence-based estimates of children infected with SARS-CoV-2 and projected cumulative numbers of severely ill pediatric COVID-19 cases requiring hospitalization during the US 2020 pandemic. By April 6, 2020, there were 74 children who had been reported admitted to pediatric intensive care units (PICUs) in 19 states, reflecting an estimated 176,190 children nationwide infected with SARS-CoV-2 (52,381 infants and toddlers <2 years, 42,857 children 2-11 years, and 80,952 children 12-17 years). Under a cumulative pediatric infection proportion (CPIP) scenario of 5%, there would be 3.7 million children infected with SARS-CoV-2, 9907 severely ill children requiring hospitalization, and 1086 critically ill children requiring PICU admission. Under a CPIP scenario of 50%, 10,865 children would require PICU admission, 99,073 would require hospitalization for severe pneumonia, and 37 million would be infected with SARS-CoV-2. Because there are 74.0 million children 0-17 years old in the US, the projected numbers of severe cases could overwhelm available pediatric hospital care resources under several moderate CPIP scenarios, despite lower severity of COVID-19 in children than in adults. | This study provides estimated projections for pediatric cases in the United States. It states that a surge in severe cases of COVID-19 in children, despite displaying lower severity than adults, could overwhelm pediatric hospital capacity and present further challenges to public health efforts in the US. | Pathak EB, Salemi JL, Sobers N, Menard J, Hambleton IR. COVID-19 in Children in the United States: Intensive Care Admissions, Estimated Total Infected, and Projected Numbers of Severe Pediatric Cases in 2020 [published online, 2020 Apr 10]. J Public Health Manag Pract. 2020. doi:10.1097/PHH.0000000000001190 |

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| Fecal viral shedding, transmission dynamics, children, convalescent phase, China | 10-Apr-20 | Dynamics of Faecal SARS-CoV-2 in Infected Children During the Convalescent Phase | Journal of Infection | Letter to the Editor | In response to the recent paper by He et al. reviewing current evidence on COVID-19 and fecal shedding of SARS-CoV-2 as a possible route of viral transmission, this letter shares findings from a series of three pediatric patients, in Qingdao, China, who tested positive for SARS-CoV-2 viral RNA in stool samples up to 8-20 days after clearance of viral RNA in respiratory specimens. All patients were diagnosed with mild pneumonia, and only one child had gastrointestinal symptoms. All children were in stable condition during the course of hospitalization. Laboratory and radiological features were not typical for COVID-19. The children showed good response to supportive and anti-viral treatment. Negative conversion of viral RNA in respiratory specimens occurred within 2 weeks after disease onset. In contrast, viral RNA remained detectable in feces for approximately 4 weeks. | Recent evidence raises the possibility of fecal-oral transmission of SARS-CoV-2, reinforcing the need for nucleic acid testing of stool samples from COVID-19 patients, particularly children, during the convalescent phase. | Xing Y, Ni W, Wu Q, et al. Dynamics of Faecal SARS-CoV-2 in Infected Children during the Convalescent Phase [published online, 2020 Apr 10]. J Infect. 2020. doi:10.1016/j.jinf.2020.03.049 |
| Children, immune response, cytokine storm syndromes, immune-modulating treatment | 10-Apr-20 | COVID-19 - Considerations for the Paediatric Rheumatologist | Clinical Immunology | Review Article | A significant proportion of adult patients with COVID-19 require hospitalization and may develop severe life-threatening complications. Children, on the other hand, can carry and transmit the virus, but usually do not develop severe disease. Mortality in the pediatric age-group is relatively low. Differences in virus containment and clearance, as well as reduced inflammation-related tissue and organ damage may be caused by age-specific environmental and host factors. Since severe complications in adults are frequently caused by uncontrolled immune responses and a resulting "cytokine storm" that may be controlled by targeted blockade of cytokines. Although children receiving immunosuppressive treatment may be at increased risk for SARS-CoV-2 infections, immunosuppression may indeed protect them from complications. | Immune-modulating treatment should be continued for children, with close clinical monitoring. Delayed activation of adaptive immune responses may be beneficial in mitigating cytokine storm syndromes associated with COVID-19. | Hedrich CM. COVID-19 - Considerations for the paediatric rheumatologist [published online, 2020 Apr 10]. Clin Immunol. 2020. doi:10.1016/j.clim.2020.108420 |
| Pediatrics, telemedicine, gastro-enterology, inflammatory bowel disease, intestinal failure | 10-Apr-20 | COVID-19 - A Guide to Rapid Implementation of Telehealth Services: A Playbook for the Pediatric Gastro-enterologist | Journal of Pediatric Gastro-enterology and Nutrition | Invited Commentary | The COVID-19 pandemic has triggered an unprecedented expansion in telemedicine across the United States and world, in an effort to slow the spread of disease, particularly in high-risk healthcare settings. This commentary establishes best practices for telehealth in pediatric gastroenterology to improve clinical outcomes. For example, telemonitoring systems for inflammatory bowel disease that utilize remote tracking of clinical data have shown promise in improving outcomes, specifically in reducing hospitalizations. Similarly, transitioning multi-provider visits to telehealth provides the opportunity to conduct multiple family and care team members simultaneously, reducing risk of exposure for children who are medically complex, like those undergoing intestinal rehabilitation. | Telemedicine is rapidly expanding in an effort to reduce risk of SARS-CoV-2 transmission in health care settings. This commentary can help guide providers during the transition to telehealth services, with specific regard to pediatric gastroenterology. | Berg EA, Picoraro JA, Miller SD, et al. COVID-19 - A Guide to Rapid Implementation of Telehealth Services: A Playbook for the Pediatric Gastroenterologist [published online, 2020 Apr 10]. J Pediatr Gastroenterol Nutr. 2020. doi:10.1097/MPG.0000000000002749 |
| Perinatology, pregnancy, neonates | 10-Apr-20 | Perinatal Aspects on the Covid-19 Pandemic: A Practical Resource for Perinatal-Neonatal Specialists | Journal of Perinatology | Review | This review presents analysis of literature on COVID-19 using Medline and Google scholar to summarize available evidence on perinatal aspects of COVID-19. From scant data: vertical transmission from maternal infection during the third trimester probably does not occur or likely it occurs very rarely. Consequences of COVID-19 infection among women during early pregnancy remain unknown. Whether or not pregnancy is a risk factor for more severe disease in women with COVID-19 cannot be concluded. Little is known about disease severity in neonates, and from very few samples, the presence of SARS-CoV-2 has not been documented in human milk. | This comprehensive review of available literature on COVID-19 in pregnant women and neonates includes useful links to guidelines and expert opinions, as well as infographics on treatment strategies. | Mimouni F, Lakshminrusimha S, Pearlman SA, et al. Perinatal aspects on the covid-19 pandemic: a practical resource for perinatal-neonatal specialists [published online, 2020 Apr 10]. J Perinatol. 2020. doi:10.1038/s41372-020-0665-6 |

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| Children, school closure, food insecurity, poor childhood nutritional status, Thailand | 10-Apr-20 | COVID-19, School Closings and Weight Gain | Obesity | Letter to the Editor | In response to the publication on "COVID-19 Related School Closings and Risk of Weight Gain Among Children" (Rundle et al., 2020), authors share observations from Thailand, the second country in the timeline of COVID-19. In Thailand, school aged children in rural areas where COVID-19 disease outbreak exists are usually underweight. Thus, poorer childhood nutritional status may result from school closings and lack of access to government funded meals at school. | This correspondence provides a global perspective, from Thailand, on the impact of school closings on nutritional status among children from poor families. | Joob B, Wiwanitkit V. COVID-19, School Closings and Weight Gain [published online, 2020 Apr 10]. Obesity (Silver Spring). 2020;10.1002/oby.22825. doi:10.1002/oby.22825 |
| Neonate, pregnancy, vaginal delivery, serological testing, breast milk samples, vertical transmission, China | 10-Apr-20 | Vaginal Delivery Report of a Healthy Neonate Born to a Convalescent Mother With COVID-19 | Journal of Medical Virology | Short Communication | This case report describes a pregnant woman, who was admitted to Beijing YouAn Hospital on January 29, 2020 (33 weeks 1 day gestation) and diagnosed with COVID-19. She received antiviral, anti-infection, and corticosteroid therapies and recovered following treatment. Follow-up RT-PCR tests were negative, and virus-specific IgG and IgM antibodies in maternal venous blood were positive. Thirty-seven days after diagnosis, a male neonate was delivered successfully by vaginal delivery. RT-PCR testing of breast milk, amniotic fluid, and neonatal throat and rectal samples tested negative. Neonatal sera samples were also negative for IgG and IgM antibodies, and SARS-CoV-2 N protein was not detected in the placenta by immunohistochemical analysis. Findings indicate that there is no intrauterine transmission in a woman who develops COVID-19 pneumonia in late pregnancy. | A neonate, born to a convalescing mother, tested negative for COVID-19 infection. Although virus-specific IgG and IgM were detected in maternal sera following recovery, antibodies were absent in neonatal sera. Breast milk samples also tested negative. | Xiong X, Wei H, Zhang Z, et al. Vaginal Delivery Report of a Healthy Neonate Born to a Convalescent Mother with COVID-19 [published online, 2020 Apr 10]. J Med Virol. 2020. doi:10.1002/jmv.25857 |
| Pregnancy, clinical algorithm, Spanish | 9-Apr-20 | A Spanish-translated clinical algorithm for management of suspected SARS-CoV-2 infection in pregnant women | The Lancet Infectious Diseases | Correspondence | No standardized guidelines for treating pregnant women with SARS-CoV-2 infection are currently available in Spanish. Authors of this correspondence call for dissemination of the clinical algorithm, proposed by Favre et al. for the management of pregnant women with suspected COVID-19, to Spanish-speaking countries where such information is urgently needed. A translated algorithm in Spanish is proposed in the appendix, and recommendations for breastfeeding are discussed as well. | Authors translate a proposed clinical algorithm for the management of pregnant women with COVID-19 into Spanish. | Martinez-Portilla, RJ, Goncé, A, Hawkins-Villarreal, A, Figueras F. A Spanish-translated clinical algorithm for management of suspected SARS-CoV-2 infection in pregnant women [published online, 2020 Apr 9]. Lancet Infect Dis. 2020. doi:10.1016/S1473-3099(20)30285-1 |
| Recovered children, re-hospitalization, post-discharge surveillance, China | 9-Apr-20 | Rehospitalization of a Recovered Coronavirus Disease 19 (COVID-19) Child With Positive Nucleic Acid Detection | The Pediatric Infectious Disease Journal | Instructive Cases | A recent study reported that 14% of adult patients, who were hospitalized and recovered from COVID-19, showed positive results of SARS-CoV-2 nucleic acid tests (NATs) soon after discharge, raising concern that recovered patients may be potential carriers of the virus. Little attention, however, has been paid to recovered children. In this case, authors describe an 8-year-old child, who was hospitalized on February 7, 2020 after exposure to his grandmother with suspected COVID-19. Following antiviral and symptomatic treatment, his throat swab NATs turned negative on February 16, and he was discharged on February 19. Ten days later, while quarantined at home, the patient developed an unexplained fever and was re-hospitalized the following day on March 1. Throat swab NATs were negative on March 3, while positive on March 5. Serum antibody tests showed weakly positive results for IgM and strong positive results for IgG on March 6. | This case indicates that children who recover clinically from COVID-19 may still carry trace amounts of virus, which could lead to potential reactivation. After patients meet discharge criteria, it may take several additional days for their immune systems to completely clear the virus. | Wang H, Li Y, Wang F, Du H, Lu X. Rehospitalization of a Recovered Coronavirus Disease 19 (COVID-19) Child With Positive Nucleic Acid Detection [published online, 2020 Apr 9]. Pediatr Infect Dis J. 2020. doi:10.1097/INF.0000000000002690 |

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| Children, pediatric ED visits, delayed access to hospital care, comorbidities, acute onset of chronic conditions, severe malnutrition, pediatric deaths, Italy | 9-Apr-20 | Delayed Access or Provision of Care in Italy Resulting From Fear of COVID-19 | The Lancet Child & Adolescent Health | Correspondence | During Italy's national lockdown for COVID-19, official hospital statistics, in the period of March 1–27, 2020, show substantial decreases—ranging from 73% to 88%—in pediatric emergency department visits compared with the same time period in 2019 and 2018. Family pediatricians also widely report a considerable reduction in clinic visits. Since schools and sports activities have been closed since March 1, the numbers of acute infections and trauma among children are understandably lower than usual. In addition, relatively few cases of COVID-19 among children (<18 years old) have been reported, only accounting for 1.5% of total positive cases in Italy. However, children continue to acquire other infections and complications or acute onset of chronic conditions, such as cancer, endocrine disorders (e.g. diabetes), surgical conditions (e.g. appendicitis), and severe malnutrition. The substantial decreases in pediatric care access in Italy might reflect scarcity of available resources due to pandemic-related redistribution, or reticence on the part of parents and caregivers to risk exposure to SARS-CoV-2 in a health-care setting. Within an Italian Pediatric Hospital Research Network, 12 cases of delayed access to hospital care have been reported during the week of March 23–27, 2020 across five hospitals. Of this small series of 12 cases, half of the children were admitted to the ICU and four died, compared to a typical yearly range of zero to three total pediatric deaths in these hospitals. In five cases, the family had contacted health services before accessing care, but their health provider was unavailable, or hospital access was discouraged. All cases were negative for SARS-CoV-2 or had clinical presentation that did not justify diagnostic testing. Since delay in access to care was not monitored systematically, this case series, although clearly a small sample, might underestimate the problem. | A small case series from hospitals in Italy reveals that delayed access to hospital care for emergency conditions in children may pose greater risk to health than COVID-19, especially for children with pre-existing chronic conditions. Further monitoring of access to routine clinical care as well as clear guidance for health care workers and the general population are needed during the COVID-19 pandemic. | Lazzerini M, Barbi E, Apicella A, Marchetti F, Cardinale F, Trobia G. Delayed access or provision of care in Italy resulting from fear of COVID-19 [published online, 2020 Apr 9]. Lancet Child Adolesc Health. 2020. doi:10.1016/S2352-4642(20)30108-5 |
| Children, household transmission, family cluster | 9-Apr-20 | Children are unlikely to have been the primary source of household SARS-CoV-2 infections. | The Lancet Infectious Diseases | Original Article | At present, there is concern that children could be an important source of SARS-CoV-2 infection in household transmission clusters. This study analyzes literature published between December 2019 and March 2020 on the clinical features of SARS-CoV-2 in children and descriptions of household transmission clusters. The index case of each cluster is defined as the individual in the cluster who first developed symptoms. Drawing on studies from China, Singapore, South Korea, Japan, and Iran, a broad range of clinical symptoms were observed in children. These ranged from asymptomatic to severe disease. Of the 31 household transmission clusters that were identified, 9.7% (3/31) were identified as having a pediatric index case. This is in contrast other zoonotic infections (namely H5N1 influenza virus) where 54% (30/56) of transmission clusters identified children as the index case. Whilst SARS-CoV-2 can cause mild disease in children, existing data suggest that children have not played a substantive role in the intra-household transmission of SARS-CoV-2. | An analysis of 31 household transmission clusters from various studies revealed that children comprised the index case for only 3 clusters, thus may play a smaller role in intra-household transmission of SARS-CoV-2. | Zhu Y, Bloxham CJ, Hulme KD, et al. Children are unlikely to have been the primary source of household SARS-CoV-2 infections. medRxiv. 2020. doi:10.2139/ssrn.3564428 |
| Children, immune-suppressed children, socio-economic consequences | 9-Apr-20 | Coronavirus Disease (COVID-19) in Children - What We Know So Far and What We Do Not? | Indian Pediatrics | Special Article | Pediatric COVID-19 infection is relatively mild when compared to adults, and children are reported to have a better prognosis. Clinical features of COVID-19 in children include fever and cough, but a large proportion of infected children appears to be asymptomatic and may contribute to transmission. It remains unclear why children and young adults are less severely affected than older individuals, but this might involve differences in immune system | This article considers the impact of COVID-19 on immunosuppressed children, reviewing recent data that | Balasubramanian S, Rao NM, Goenka A, Roderick M, Ramanan AV. Coronavirus Disease (COVID-19) in Children - What We Know So Far and What We Do Not? |

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| | | | | | function in the elderly and/or differences in the expression and function of the cellular receptor for SARS-CoV-2 - Angiotensin converting enzyme 2 (ACE2). Laboratory findings and chest imaging may not be specific in children with COVID-19. Diagnosis is by RT-PCR testing of upper or lower respiratory tract secretions. Despite concerns that immunocompromised children may have severe infection analogous to other respiratory viruses, Antiga et al. (March 20, 2020) described that children were not at greater risk of severe COVID-19, probably owing to their lower functional host innate immune response, which is the main driver for lung damage. No data are available on the severity of COVID-19 infection in children with malnutrition, rheumatic heart disease, or HIV. This review also suggests a management algorithm for the few children who appear to present with life threatening infection, including the potential use of antiviral and immunomodulatory treatment. | suggests that lower immune response may actually protect children from infection. | [published online, 2020 Apr 9]. Indian Pediatr. 2020;S097475591600159. |
| Pregnancy, neonates, universal testing, breastfeeding, New York City | 9-Apr-20 | COVID-19 infection among asymptomatic and symptomatic pregnant women: Two weeks of confirmed presentations to an affiliated pair of New York City hospitals | American Journal of Obstetrics & Gynecology MFM | Case Series | Authors describe a series of 43 test-confirmed cases of COVID-19 in pregnant women presenting to a pair of affiliated New York City hospitals over two weeks from March 13 to 27, 2020. Fourteen (32.6%) patients presented without any COVID-associated symptoms and were identified either after developing symptoms during admission or following the implementation of universal testing for all obstetrical admissions on March 22. Of these, 10/14 (71.4%) developed symptoms or signs of COVID-19 infection over the course of their delivery admission or early after postpartum discharge. Of the other 29 (67.4%) patients who presented with symptomatic COVID-19 infection, three women ultimately required antenatal admission for viral symptoms, and an additional patient represented six days postpartum with worsening respiratory status that required oxygen supplementation. There were no confirmed cases of COVID-19 detected in neonates upon initial testing on the first day of life. One neonate had an "indeterminant" test result, which was clinically managed as a "presumptive negative" diagnosis. Another neonate was admitted to the NICU for respiratory distress with concern for sepsis at 37 weeks but tested negative for COVID-19 infection. Healthy newborns either roomed in with their mothers in isolettes whenever possible or were cared for in an isolated nursery. Breastfeeding was encouraged with use of hand hygiene and maternal masking. Applying COVID-19 disease severity characteristics as described by Wu et al, 38 (86%) women possessed mild disease, four (9.3%) exhibited severe disease, and two (4.7%) developed critical disease; these percentages are similar to those described for non-pregnant adults with COVID-19 infections (about 80% mild, 15% severe, and 5% critical disease). | No neonates born to mothers with confirmed COVID-19 were found to have infection when tested on the first day of life. IgG and IgM SARS-CoV-2 testing was not performed. Among the pregnant women, the proportions of mild, severe, and critical disease are similar to those described for non-pregnant adults with COVID-19. Mothers were encouraged to breastfeed with proper precautions. Universal testing of pregnant women upon admission for delivery has potential clinical value, to quickly identify asymptomatic patients. | Breslin N, Baptiste C, Gyamfi-Bannerman C, Miller R, Martinez R, BernsteinK, Ring L, Landau R, Purisch S, Friedman AM, Fuchs K, Sutton D, Andrikopoulou M, Rupley D,Sheen J-J, Aubey J, Zork N, Moroz L, Mourad M, Wapner R, Simpson LL, D'Alton ME, GoffmanD, COVID-19 infection among asymptomatic and symptomatic pregnant women: Two weeks of confirmed presentations to an affiliated pair of New York City hospitals, American Journal of Obstetrics &Gynecology MFM (2020), doi:10.1016/j.ajogmf.2020.100118 |
| Pregnancy, neonates, vertical transmission, breastfeeding, preterm birth | 9-Apr-20 | Delivery in Pregnant Women Infected With SARS-CoV-2: A Fast Review | International Journal of Gynaecology & Obstetrics | Review Article | This study aims to review the available information on mode of delivery, vertical/peripartum transmission, and neonatal outcome in pregnant women infected with SARS-CoV-2. Searches were conducted used a combination of the following key words: COVID-19, SARS-CoV-2, and pregnancy in Embase and PubMed databases, from January 1 to March 31, 2020. Of 13 included studies reporting on 61 pregnant women, vaginal delivery was reported in 6 cases (9.4%; 95% CI, 3.5–19.3). Worsening of | This review of current literature on pregnant women and neonates with COVID-19 suggests that the rate of vertical transmission of SARS- | Parazzini F, Bortolus R, Mauri PA, Favilli A, Gerli S, Ferrazzi E. Delivery in pregnant women infected with SARS-CoV-2: A fast review [published online, 2020 Apr |

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| | | | | | maternal conditions was the indication for cesarean delivery in 31 cases (48.4%; 95% CI, 35.8–61.3). Preterm birth was observed in 19 cases among the 48 for which information on gestational age was available (39.6%; 95% CI, 25.8-54.7). In only two cases, delivery was due to spontaneous preterm labor. Eleven newborns with respiratory disease and two newborns testing positive for SARS-CoV-2 by real-time RT-PCR assay were reported. In three neonates, SARS-CoV-2 IgG and IgM levels were elevated, but the RT-PCR test was negative. The rate of vertical or peripartum transmission of SARS-CoV-2 is low, if any, for cesarean delivery; no data are available for vaginal delivery. | CoV-2 is low, if any, for cesarean delivery. Crucial data are not available for vaginal delivery. Breastfeeding was not generally reported, thus the risk of transmission during breastfeeding is unknown. | 9]. Int J Gynaecol Obstet. 2020. doi:10.1002/ijgo.13166 |
| Children, pediatricians, 2009 H1N1 pandemic, India | 9-Apr-20 | Impact of COVID-19 on Children and Pediatricians | Indian Pediatrics | Correspondence | Authors highlight similarities and differences in the Indian government's response to the 2009 H1N1 pandemic and the current SARS-CoV-2 pandemic, and their impact on children and pediatricians. In 2009, the government response was much more limited to advisories on prevention of H1N1. During this pandemic, the government has taken very protective measures by placing the entire country in lockdown beginning March 24, 2020. This has implications for children's physical and mental health. Children from less privileged sections of society may become malnourished. Online and domestic child abuse may increase during this period. Pediatricians must be on the lookout for severe disease in "high risk" children (immunocompromised, lung or airway disease, long term steroids, thalassemia, nephrotic syndrome, etc.) in addition to continuing their ongoing management. In addition, there is some interest in the possible role of measles and BCG vaccines in providing protection against SARS-CoV-2. | A country-wide lockdown in India may create barriers for children from communities with few resources and lead to higher rates of malnutrition. The possibility of using measles and BCG vaccines to protect against SARS-CoV-2 must be explored further. | Kulkarni RK, Kinikar AA, Chandanwale A. Impact of COVID-19 on Children and Pediatricians [published online, 2020 Apr 9]. Indian Pediatr. 2020;S097475591600157. |
| Children, neonates, basic and advanced life support, cardio-pulmonary resuscitation, task forces | 9-Apr-20 | Interim Guidance for Basic and Advanced Life Support in Adults, Children, and Neonates With Suspected or Confirmed COVID-19 | Circulation | Consensus Report | The American Heart Association has compiled interim guidance to adapt current cardiopulmonary resuscitation guidelines to treating victims of cardiac arrest with suspected or confirmed COVID-19. Approximately 12-19% of COVID positive patients require hospital admission and 3-6% become critically ill. Hypoxemic respiratory failure secondary to acute respiratory distress syndrome (ARDS), myocardial injury, ventricular arrhythmias, and shock are common among critically ill patients and predispose them to cardiac arrest, as do some of the proposed treatments, such as hydroxychloroquine and azithromycin, which can prolong the QT. Resuscitations, however, carry added risk to healthcare workers—the administration of CPR involves performing numerous aerosol-generating procedures, and require providers to work in close proximity to one another and the patient. Routine neonatal care and the initial steps of resuscitation are unlikely to be aerosol-generating; however, the mother is a potential source of aerosolization. | Various task forces of the American Heart Association, in collaboration with supporting organizations, outline general principles for resuscitation in suspected and confirmed COVID-19 patients, with special considerations for maternal and neonatal populations. | Edelson DP, Sasson C, Chan PS, et al. Interim Guidance for Basic and Advanced Life Support in Adults, Children, and Neonates With Suspected or Confirmed COVID-19. [published online, 2020 Apr 9]. Circulation. 2020. doi:10.1161/CIRCULATIONAHA.120.047463 |

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| Serial CT imaging, child, pneumonia, China | 9-Apr-20 | Serial Computed Tomography Manifestations in a Child With Coronavirus Disease (COVID-19) Pneumonia | Indian Pediatrics | Clinical Case Letter | Computed tomography (CT) manifestations and treatment of children with COVID-19 are still unclear. Authors report serial CT findings of an 11-year-old child with COVID-19 pneumonia, who recovered on interferonα-2b combined with aerosol therapy, without any sequelae. Repeat chest CT revealed patchy ground-glass opacities in left lower lobe with air bronchogram, on admission, which gradually resolved to scattered then slightly scattered ground-glass opacities after two weeks of therapy. | This brief case study reports on serial CT findings from an 11-year-old child with COVID-19 pneumonia. The use of CT imaging to diagnose COVID-19 children is currently debated. | Guiqing HE, Sun W, Jing WU, Cai J. Serial Computed Tomography Manifestations in a Child with Coronavirus Disease (COVID-19) Pneumonia [published online, 2020 Apr 9]. Indian Pediatr. 2020;S097475591600158. |
| Discharged children, recurrent viral activity, serum D-dimer, lymphocyte count | 8-Apr-20 | PCR Assays Turned Positive in 25 Discharged COVID-19 Patients | Clinical Infectious Diseases | Brief Report | A total of 172 COVID-19 infected patients were discharged from Shenzhen Third People's Hospital between January 23 to February 21, 2020. All met criteria for hospital discharge, including normal body temperature for >3 consecutive days, reduction in respiratory symptoms, improvement detected by chest radiography, and at least two consecutively negative results of RT-PCR testing separated by at least a 24-hour interval. Following discharge, cloacal and nasopharyngeal swab samples were collected every three days. 25/172 discharged patients (14.5%) had positive RT-PCR results. An average of 7.32 +/- 3.86 days passed between their last negative RT-PCR result and turning positive again. 17 were female, and 6 were children under 12 years old. There was a significant inverse correlation between serum D-dimer levels before discharge and the duration of treatment in these 25 patients compared to the 147 patients who were not re-admitted (r=-0.637; p=0.002). In addition, lymphocyte concentrations prior to discharge were significantly positively correlated with the time interval for virus reappearing (r=0.52; p=0.008). | RT-PCR tests detecting SARS-CoV-2 infection of 6 children (<12 years) with COVID-19 who met hospital criteria for discharge, turned positive again following discharge. | Yuan J, Kou S, Liang Y, Zeng J, Pan Y, Liu L. PCR Assays Turned Positive in 25 Discharged COVID-19 Patients [published online, 2020 Apr 8]. Clin Infect Dis. 2020. doi:10.1093/cid/ciaa398 |
| Child, family cluster, incubation period, China | 8-Apr-20 | Four Cases From a Family Cluster Were Diagnosed as COVID-19 After 14-day of Quarantine Period | Journal of Medical Virology | Letter to the Editor | Four cases of SARS-CoV-2 were identified within a family cluster, following a 14-day quarantine period. One of the patients was a 7-year-old boy, who presented with low fever. The time period from infection to symptom onset was estimated to be 30 days. CT scans of the chest showed right lobular and subsegmental areas of ground-glass opacity. A 13-year-old girl in the family did not present with any symptoms and tested negative for SARS-CoV-2, detected by qRT-PCR, on three sequential nasopharyngeal swabs. | Varying lengths of incubation periods were observed in this family cluster of SARS-CoV-2 infection. The time from infection to symptom onset in a 7-year old boy was 30 days. | Chen D, Li Y, Deng X, et al. Four cases from a family cluster were diagnosed as COVID-19 after 14-day of quarantine period [published online, 2020 Apr 8]. J Med Virol. 2020. doi:10.1002/jmv.25849 |
| Pregnancy, neonatal infection, vertical transmission, health worker infection, China | 8-Apr-20 | Association of COVID-19 Infection With Pregnancy Outcomes in Healthcare Workers and General Women | Clinical Microbiology and Infection | Case Series | This case series describes 17 pregnant women (3 health workers) with qRT-PCR and/or CT imaging confirmed COVID-19 admitted to Hubei General Hospital from January 25 to February 15, 2020. All deliveries occurred via C-section, and there were no neonatal deaths. Three cases of preterm delivery were reported. Cord blood and neonatal throat swab samples from neonates were collected. Neonatal pneumonia was observed in five neonates, and two were found to have suspected COVID-19 based on positive test results within 24 hours after delivery. Intrauterine tissue samples, such as placenta, cord blood or amniotic fluid were not tested to confirm whether or not neonatal infection was the result of vertical transmission. | Two neonates with suspected COVID-19 infection, and five neonates with neonatal pneumonia were identified. Although intrauterine tissue samples were not tested, the potential of vertical transmission cannot be ruled out. | Khan S, Jun L, Nawsherwan, et al. Association of COVID-19 infection with pregnancy outcomes in healthcare workers and general women [published online, 2020 Apr 8]. Clin Microbiol Infect. 2020. doi:10.1016/j.cmi.2020.03.034 |

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| Family cluster, asymptomatic child, China | 8-Apr-20 | Asymptomatic cases in a family cluster with SARS-CoV-2 infection. | The Lancet Infectious Diseases | Correspondence | This case study reports the clinical characteristics of a family cluster of SARS-CoV-2 infection. In this family of three, one 35-year-old man had clinical symptoms, a decreased lymphocyte count, abnormal chest CT images, and a positive result on qRT-PCR. By contrast, the other two family members—a 33-year-old woman and a 3-year-old boy—were both asymptomatic, with normal lymphocyte counts and chest CT images but positive qRT-PCR results. In this family cluster, any of the three individuals could have been the first one to become infected and thus transmitted the virus to the other two family members. Importantly, asymptomatic patients might be unaware of their disease and/or be overlooked by health care professionals, thus may unknowingly transmit the virus to others. | To prevent and control this highly infectious disease, people with family members with SARS-CoV2 infection should be closely monitored and examined to rule out infection, especially in family clusters with children. | Pan X, Chen D, Xia Y, et al. Asymptomatic cases in a family cluster with SARS-CoV-2 infection. Lancet Infect Dis. 2020;20(4):410–411. doi:10.1016/S1473-3099(20)30114-6 |
| Children, clinical characteristics, prognosis, China | 8-Apr-20 | Clinical Characteristics of a Case Series of Children With Coronavirus Disease 2019 | Pediatric Pulmonology | Original Article | This case series reports the clinical characteristics of 10 patients with COVID-19 aged from 1 year to 18 years, retrospectively recruited from 3 designated hospitals in Jiangsu province, China between January 24 and February 22, 2020. Seven patients had contact with confirmed COVID-19 family members before onset. Fever (4 [40%]) and cough (3 [30%]) were the most common symptoms. No patient showed leucopenia and lymphopenia on admission. Pneumonia was observed in chest CT images in 5 (50%) patients. Oxygen therapy was required in 1 (20%) patient. Five (50%) patients received antiviral treatment. No patient had severe complications or developed a severe illness in our study. This study indicated that COVID-19 children present less severe symptoms and have better outcomes. | Consistent with adults, fever and cough were frequently reported symptoms among children with COVID-19. In contrast with adults, children were less susceptible to severe disease, and family clusters of infection were common. | Zhu L, Wang J, Huang R, et al. Clinical characteristics of a case series of children with coronavirus disease 2019 [published online, 2020 Apr 8]. Pediatr Pulmonol. 2020. doi:10.1002/ppul.24767 |
| Neonatal resuscitation, post-resuscitation care, pregnancy, perinatal management, breastfeeding | 8-Apr-20 | Neonatal Resuscitation and Post-resuscitation Care of Infants Born to Mothers with Suspected or Confirmed SARS-CoV-2 Infection. | American Journal of Perinatology | Clinical Opinion | Pregnant women and newborns represent a vulnerable population in the global COVID-19 pandemic. However, the precise impact of this novel virus on the fetus and neonate remains uncertain. There is some disagreement among experts on an optimal approach to protect health care workers and newborns during and after delivery by a COVID-19. Decisions must be based on resource availability, surge volume, and potential risk of transmission. This manuscript outlines the precautions and steps to be taken before, during, and after resuscitation of a newborn born to a COVID-19 mother, including three optional variations of current standards involving shared-decision making with parents for perinatal management, resuscitation of the newborn, disposition, nutrition, and post-discharge care. The availability of resources may also drive the application of these guidelines. More evidence and research are needed to assess the risk of vertical and horizontal transmission of SARS-CoV-2 and its impact on fetal and neonatal outcomes. | This article provides a comprehensive overview of recommendations for perinatal management of pregnant women with confirmed COVID-19 and newborns. Parents should be engaged in shared decision-making with options for rooming in, skin-to-skin contact, and breastfeeding. | Chandrasekharan P, Vento M, Trevisanuto D, et al. Neonatal Resuscitation and Postresuscitation Care of Infants Born to Mothers with Suspected or Confirmed SARS-CoV-2 Infection [published online, 2020 Apr 8]. Am J Perinatol. 2020. doi:10.1055/s-0040-1709688 |
| Neonatal infection, clinical characteristics, China | 8-Apr-20 | Novel Coronavirus Infection in Newborn Babies Under 28 Days in China | European Respiratory Journal | Research Letter | Previous studies have described the clinical features of COVID-19 in adults and infants under 1 year of age. Little is known about features, outcomes and intrauterine transmission potential in newborns aged 28 days or less. Through systematic searching, authors identified 4 infections in newborns in China as of March 13, 2020. The age range was 30 hours to 17 days old. Three were male. One newborn had fever and cough, 1 had fever only, 1 had shortness of breath, and 1 had no symptoms. Supportive treatment was provided for all 4 newborns. None required intensive unit care or mechanical ventilation. Three newborns recovered by the end of this study. | Based on four cases of neonatal infection, neonates appear susceptible to COVID-19 but experience milder symptoms than adults. | Zhang ZJ, Yu XJ, Fu T, et al. Novel Coronavirus Infection in Newborn Babies Under 28 Days in China [published online, 2020 Apr 8]. Eur Respir J. 2020;2000697. doi:10.1183/13993003.00697-2020 |

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| | | | | | All 4 mothers were infected with SARS-CoV-2, 3 showing symptoms before and 1 after delivery. Cesarean section was used for all 4 deliveries. Three newborns were separated from their mothers and were not breastfed. In summary, newborns are susceptible to SARS-CoV-2 infection and present milder symptoms and better outcomes compared to adults. Intrauterine vertical transmission is possible, but direct evidence is still lacking. | | |
| Children, susceptibility, angiotensin-converting enzyme (ACE), adjuvant drug therapy | 8-Apr-20 | Possible causes for decreased susceptibility of children to coronavirus. | Nature Pediatric Research | Editorial | Children have been shown to have progressively increasing levels of serum ACE (angiotensin-converting enzyme) from 4 to 13 years of age, after which levels gradually decrease until they reach adult values. High ACE activity has also been documented in the serum of newborns, whose rapid development of lung capillary endothelial cells may provide the source for circulating ACE. In terms of immunity, several studies have shown higher CD4 T lymphocyte counts and lower CD8 T lymphocyte counts in children, compared to adults. Changing levels of T lymphocytes with age is related to thymus development. Like SARS-CoV, 2019-nCoV may act primarily on T lymphocytes, so adjuvant thymosin drug therapy may provide benefit for 2019-nCoV patients. | Increased levels of ACE, an enzyme that converts inactive angiotensin I to active angiotensin II (a potent vasoconstrictor) may contribute to lower susceptibility to COVID-19 disease in children. The details of this pathway are not clearly described in this article. | Zhu L, Lu X, Chen L. Possible causes for decreased susceptibility of children to coronavirus [published online, 2020 Apr 8]. Pediatr Res. 2020. doi:10.1038/s41390-020-0892-8 |
| Pediatric management, operating room, PICU, general anesthesia, Singapore | 8-Apr-20 | Special considerations for the management of COVID-19 pediatric patients in the operating room and pediatric intensive care unit in a tertiary hospital in Singapore. | Pediatric Anesthesia | Special Interest Article | The pediatric population has been found to be less susceptible to COVID-19 disease with the majority of children having milder symptoms and only one pediatric death being reported globally so far. Despite this, strategies need to be put in place to prevent further spread of the virus. Authors present a summary of the general measures implemented at a large adult and pediatric tertiary hospital in Singapore (National University Hospital) as well as the specific strategies in place for the operating room, pediatric intensive care unit, and code blue workflow. These strategies include but are not limited to use of designated negative pressure rooms, personal protective equipment policies, restrictions on accompaniment by one caregiver, early anticipatory planning for intubation, and simulation training. | Authors present strategies for infection control in operating rooms, pediatric intensive care units, and during code blue workflow, within a tertiary hospital in Singapore. | Thampi S, Yap A, Lijia F, Ong J. Special considerations for the management of COVID-19 pediatric patients in the operating room and pediatric intensive care unit in a tertiary hospital in Singapore [published online, 2020 Apr 8]. Paediatr Anaesth. 2020. doi:10.1111/pan.13863 |
| Children, screening, severe disease, Europe, Spain | 8-Apr-20 | Screening and Severity of Coronavirus Disease 2019 (COVID-19) in Children in Madrid, Spain | JAMA Pediatrics | Research Letter | Europe has displaced Asia as the epicenter of the COVID-19 pandemic. Authors identified 41 children of 4695 confirmed cases in a testing registry from 30 hospitals in Madrid, Spain, between March 2 and March 16, 2020. The median age of tested patients was 3 years, and the median age of patients with positive results was 1 year. Twenty-five of 41 children with confirmed COVID-19 (60%) were hospitalized, 4 of 41 (9.7%) were admitted to a pediatric intensive care unit (PICU), and 4 of 41 (9.7%) needed respiratory support beyond nasal prongs. Of these, 1 of 4 (25%) had only 1 previous condition (recurrent wheezing). No patients died. The most common initial syndromic diagnoses were upper respiratory tract infection and fever without a source. Two patients (5%) had a coinfection with influenza B. | Compared to 2.8% of children with confirmed COVID-19 who had severe or critical disease in China, 60% of children with infection required hospitalization in Madrid. Testing protocols may have biased results to more severe patients. | Tagarro A, Epalza C, Santos M, et al. Screening and Severity of Coronavirus Disease 2019 (COVID-19) in Children in Madrid, Spain. JAMA Pediatr. Published online April 08, 2020. doi:10.1001/jamapediatrics.2020.1346 |

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| Community transmission, family gatherings, Chicago, IL | 8-Apr-20 | Community Transmission of SARS-CoV-2 at Two Family Gatherings — Chicago, Illinois, February–March 2020 | Morbidity and Mortality Weekly Report | Report | Early reports of person-to-person transmission of SARS-CoV-2 have been among household contacts, health care workers, and within congregate living facilities. Investigation of COVID-19 cases in Chicago identified a cluster of 16 confirmed or probable cases, including three deaths, likely resulting from one introduction. Extended family gatherings including a funeral and a birthday party likely facilitated transmission of SARS-CoV-2 in this cluster. U.S. residents should adhere to CDC recommendations for social distancing, avoid gatherings, and follow stay-at-home orders when required by state or local authorities. | Beyond immediate family clusters, community transmission has occurred between non-household contacts at family gatherings. | Ghinai I, Woods S, Ritger KA, et al. Community Transmission of SARS-CoV-2 at Two Family Gatherings — Chicago, Illinois, February–March 2020. MMWR Morb Mortal Wkly Rep. ePub: 8 April 2020. DOI: http://dx.doi.org/10.15585/mmwr.mm6915e1 |
| Children, immuno-suppression, anticancer chemotherapy, flash survey | 7-Apr-20 | Flash Survey on Severe Acute Respiratory Syndrome coronavirus-2 Infections in Paediatric Patients on Anticancer Treatment | European Journal of Cancer | Original Research | There is a concern that children treated for cancer may be at risk for an unfavorable course of SARS-CoV-2 infection. Results from this study are based on responses to a flash, Web-based survey on COVID-19 incidence and severity among children on anticancer treatment, from pediatric hematology/oncology centers in 25 countries, where approximately 10,000 at-risk patients are followed. At the time of the survey, more than 200 of these children were tested. Nine were positive for COVID-19, and the majority had mild or asymptomatic disease. Despite these results, the risk of developing a more severe course of COVID-19 in immunocompromised children should not be underestimated. | Children receiving chemotherapy or immunosuppressive therapy may not experience more severe illness but remain at high risk for infection. | Hrusak O, Kalina T, Wolf J, et al. Flash survey on severe acute respiratory syndrome coronavirus-2 infections in paediatric patients on anticancer treatment [published online, 2020 Apr 7]. Eur J Cancer. 2020. doi:10.1016/j.ejca.2020.03.021 |
| Vitamin C, infusion, sepsis related ARDS, clinical trial, China | 7-Apr-20 | A New Clinical Trial to Test High-Dose Vitamin C in Patients With COVID-19 | Critical Care | Letter | In addition to antioxidant properties, vitamin C supports healthy immune function. During infection, vitamin C levels can become depleted and a person's requirement for vitamin C increases with severity of the infection. As of February 2020, the clinical characteristics of patients hospitalized with COVID-19-related pneumonia indicated that 26% were transferred to the ICU because of complications such as ARDS and shock. A recently published RCT carried out in the USA in 167 patients with sepsis related ARDS indicated that administration of ~ 15 g/day of IV vitamin C for 4 days may decrease mortality in these patients. Recently registered on clinicaltrials.gov (Identifier: NCT04264533), a new clinical trial to investigate vitamin C infusion for the treatment of severe 2019-nCoV infected pneumonia has begun in Wuhan, China. Investigators will treat 140 patients with a placebo control or IV vitamin C at a dose of 24 g/day for 7 days. They will assess requirements for mechanical ventilation and vasopressor drugs, organ failure scores, ICU length of stay and 28-day mortality. Investigators of the new study hope to complete the trial by the end of September. | This letter describes a recently launched clinical trial, based in Wuhan, China, to investigate IV vitamin C as treatment for severe COVID-19 infection. | Carr AC. A new clinical trial to test high-dose vitamin C in patients with COVID-19. Crit Care. 2020;24(1):133. Published 2020 Apr 7. doi:10.1186/s13054-020-02851-4 |
| Maternity services, maternity care providers, pregnancy, neonates, psychological support | 7-Apr-20 | Caring for the Carers: Ensuring the Provision of Quality Maternity Care During a Global Pandemic | Women and Birth | Editorial Article | Amidst the COVID-19 pandemic, maternity care (MC) providers must continue their core business in caring and supporting women, newborns and their families whilst also adapting to a rapidly changing health system environment. This article provides an overview of important considerations for supporting the emotional, mental and physical health needs of MC providers in the context of the unprecedented crisis that COVID-19 presents. Cooperation, planning ahead and adequate availability of PPE is critical. Thinking about the needs of MC providers to prevent stress and burnout is essential. Emotional and psychological support for healthcare workers must be made available throughout the response. | Supporting the physical, mental, and emotional health of maternity care providers is essential for providing the best quality care for women and newborns. | Wilson AN, Ravaldi C, Scoullar MJL, et al. Caring for the carers: Ensuring the provision of quality maternity care during a global pandemic [published online, 2020 Apr 7]. Women Birth. 2020. doi:10.1016/j.wombi.2020.03.011 |

| Key Terms | Date Published | Title | Journal / Source | Type of Publication | Summary & Key Points | Specific Observations | Full Citation |
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| Child poverty, school closures, food insecurity, educational attainment, United States, Europe | 7-Apr-20 | COVID-19, School Closures, and Child Poverty: A Social Crisis in the Making | The Lancet Public Health | Comment | School closures, as part of a physical distancing policy, in many countries are affecting the education of 80% of children worldwide. The fact that schools are closed for a long period of time could have detrimental social and health consequences for children living in poverty and are likely to exacerbate existing inequalities. School closures will exacerbate food insecurity, associated with low educational attainment and substantial risks to the physical and mental health of children. Closures are also likely to widen the learning gap in mathematical and literacy skills, often seen during summer holidays, between children from lower-income and higher-income families. | The current health crisis has the potential to become a social crisis with long-lasting consequences for children in low-income families, affected by food insecurity and learning gaps. | Van Lancker W, Parolin Z. COVID-19, school closures, and child poverty: a social crisis in the making [published online, 2020 Apr 7]. Lancet Public Health. 2020. doi:10.1016/S2468-2667(20)30084-0 |
| Maternal and perinatal outcomes, pregnancy, systematic review | 7-Apr-20 | Maternal and Perinatal Outcomes With COVID-19: A Systematic Review of 108 Pregnancies | Acta Obstetricia et Gynecolo-gica Scandinavica | Systematic Review | This systematic review searched databases for all case reports and series of COVID-19 in pregnant women and neonates from February 12 to April 4, 2020. Eighteen articles reporting data from 108 pregnancies were included. Most reports described women presenting in the third trimester with fever (68%) and coughing (34%). Lymphocytopenia (59%) with elevated C-reactive protein (70%) was observed and 91% were delivered by cesarean section. Three maternal intensive care unit admissions were noted but no maternal deaths. One neonatal death and one intrauterine death were also reported. | Although the majority of mothers were discharged without complications, severe maternal morbidity as a result of COVID-19 and perinatal deaths were reported. Vertical transmission could not be ruled out. | Zaigham M, Andersson O. Maternal and Perinatal Outcomes with COVID-19: a systematic review of 108 pregnancies [published online, 2020 Apr 7]. Acta Obstet Gynecol Scand. 2020. doi:10.1111/aogs.13867 |
| Children, clinical characteristics, China | 7-Apr-20 | Novel Coronavirus Infection in Children Outside of Wuhan, China | Pediatric Pulmonology | Original Article | This retrospective and the single-center study identified all hospitalized children diagnosed with COVID-19 between January 8 and February 19, 2020 at the Public Health Clinic Center of Changsha, Hunan, China. Six children had a family exposure. The initial symptoms of the nine children were mild, including fever (3/9), diarrhea (2/9), cough (1/9), and sore throat (1/9), two had no symptoms. Two enrolled patients showed small ground-glass opacity of chest computed tomography scan. As of February 26, six patients had a negative RT-PCR result and were discharged. Median time from exposure to a negative RT-PCR was 14 days. | Clinical symptoms of COVID-19 infection in children were not typical and showed a less aggressive clinical course than teenage and adult patients. | Shen Q, Guo W, Guo T, et al. Novel coronavirus infection in children outside of Wuhan, China [published online, 2020 Apr 7]. Pediatr Pulmonol. 2020. doi:10.1002/ppul.24762 |
| Twin pregnancy, gestational diabetes, high-risk pregnancy, breast milk sample, maternal vaginal secretion sample | 6-Apr-20 | COVID-19 in pregnancy with comorbidities: More liberal testing strategy is needed | Acta Obstetricia et Gynecolo-gica Scandinavica | Letter to the Editor | This case report describes a 34-year-old primipara with a dichorionic twin pregnancy, who was hospitalized at 36+2/7 weeks' gestation, due to hypertension and proteinuria. On admission, a nasopharyngeal SARS-CoV-2 RNA test was taken. Several hours later, an emergency cesarean section was performed, and two female newborns were delivered in good condition. Following delivery, the mother's RT-PCR test was determined to be positive for SARS-CoV-2 infection. Due to the mother's gestational diabetes (diagnosed at 29 weeks), the twin neonates were fed with formula, and breastfeeding was initiated simultaneously. Both twins had negative nasopharyngeal SARS-CoV-2 RNA tests, taken at 34 hours and 4.5 days of age. Breastmilk and maternal vaginal secretion samples also tested negative on the fifth day. | It is challenging to discriminate between common complications of high-risk pregnancies with comorbidities (e.g. gestational diabetes, preeclampsia) from COVID-19. Neonatal nasopharyngeal swabs, maternal breast milk and vaginal secretions all tested negative for SARS-CoV-2. | Gidlöf S, Savchenko J, Brune T, Josefsson H. COVID-19 in pregnancy with comorbidities: More liberal testing strategy is needed [published online, 2020 Apr 6]. Acta Obstet Gynecol Scand. 2020. doi:10.1111/aogs.13862 |
| Pregnancy, neonate, chest CT, lung ultrasound, | 6-Apr-20 | Lung ultrasound and computed tomographic findings in pregnant | Ultrasound in Obstetrics & Gynecology | Case Report | Imaging modalities play a crucial role in the management of suspected COVID-19-infected patients. Before RT-PCR test results are positive, 60–93% of patients have positive chest CT findings consistent with COVID-19 infection. This case report describes positive lung ultrasound (LUS) findings | Positive lung ultrasound findings were obtained between negative and | Kalafat E, Yaprak E, Cinar G, et al. Lung ultrasound and computed tomographic findings in pregnant woman |

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| cord blood, placental sample | | woman with COVID-19 | | | consistent with COVID-19 in a woman with an initially negative RT-PCR result. The LUS findings were present between the negative and subsequent positive RT-PCR tests, and they correlated with CT findings. The point-of-care LUS was easy to perform and, as such, could play an important role in the triage of women with suspected COVID-19. Neonatal swabs, cord blood, and placental swab RT-PCR tests were negative for SARS-CoV-2, a finding consistent with the published literature, suggesting no vertical transmission of SARS-CoV-2 in pregnant women. | subsequently positive RT-PCR results in a pregnant woman with suspected COVID-19. Neonatal swabs, cord blood, and placenta samples were negative for SARS-CoV-2. | with COVID-19 [published online, 2020 Apr 6]. Ultrasound Obstet Gynecol. 2020. doi:10.1002/uog.22034 |
| Food security, home delivery, hygiene, Brazil | 6-Apr-20 | Food (In)security in Brazil in the Context of the SARS-CoV-2 Pandemic | Cadernos de Saúde Pública | Thematic Section | In Brazil, public health efforts have focused on avoiding the spread of SARS-CoV-2, however an emerging side of the epidemic involves food security. Italy, Spain, and Portugal, already under quarantine, have developed initiatives to avoid crowding that have impacted the food chain. The food industry in Brazil faces numerous uncertainties, with the suspension of services at daycare centers, schools, and universities that normally provide meals for individuals. Brazil's socioeconomic and territorial differences challenge the feasibility of home deliveries of meals. Food security must be analyzed beyond immediate health and hygiene issues. | This article considers various dimensions of food insecurity that are emerging in the context of the COVID-19 in Brazil. | Oliveira TC, Abranches MV, Lana RM. Food (in)security in Brazil in the context of the SARS-CoV-2 pandemic. Cad Saúde Pública. 2020. Published 2020 Apr 6. doi:10.1590/0102-311X00055220 |
| Children, school closure, social distancing interventions, modeling studies | 6-Apr-20 | School Closure and Management Practices During Coronavirus Outbreaks Including COVID-19: A Rapid Systematic Review | The Lancet Child & Adolescent Health | Review | In response to the COVID-19 pandemic, 107 countries had implemented national school closures by March 18, 2020. It is unknown whether school measures are effective in coronavirus outbreaks (e.g. SARS, MERDS, or COVID-19). This systematic review searched three electronic databases and included 16 of 616 identified articles to identify what is known about the effectiveness of school social distancing practices. Data from the SARS outbreak in mainland China, Hong Kong, and Singapore suggest that school closures did not contribute to the control of the epidemic. Modelling studies of SARS produced conflicting results. Recent modelling studies of COVID-19 predict that school closures alone would prevent only 2–4% of deaths, much less than other social distancing interventions. Combinations of social distancing measures should be considered. | School closures are predicted to prevent only 2-4% deaths from COVID-19, based on recent modelling studies. Other less disruptive interventions should be considered for long-term social distancing. | Viner RM, Russell SJ, Croker H, et al. School closure and management practices during coronavirus outbreaks including COVID-19: a rapid systematic review [published online, 2020 Apr 6]. Lancet Child Adolesc Health. 2020. doi:10.1016/S2352-4642(20)30095-X |
| Nutritional management, malnutrition, meal provision, hospital setting | 6-Apr-20 | Nutritional Management in Hospital Setting During SARS-CoV-2 Pandemic: A Real-Life Experience | European Journal of Clinical Nutrition | Correspondence | Lack of nutritional support during hospital stay could prolong the recovery of patients with COVID-19 and increase further infectious complications. To better plan the nutritional management of this hospital emergency, this institution's strategy focuses on promoting nutritional support to COVID-19 patients and meal supply for healthcare professionals. Key considerations include increased energy expenditure related to fever and respiratory distress, reduced muscle mass from isolation in small areas and bed rest, the already under-recognized and undertreated status of malnutrition in hospital wards, which may worsen during a pandemic. A personalized meal provision plan has begun for oral-feedable COVID-19 patients, while those unable to eat are supported with high protein/low glucose Enteral and Parenteral Nutrition formulas. In recent Chinese experience, nutritional support was part of the multidisciplinary management for symptomatic SARS-CoV-2 affected patients. | This strategy from a regional COVID-19 reference center in Rome, Italy recommends that clinical nutritionists plan specific interventions in their hospital to care for the nutritional status of isolated and fragile COVID-19 patients. | Cintoni M, Rinninella E, Annetta MG, Mele MC. Nutritional management in hospital setting during SARS-CoV-2 pandemic: a real-life experience [published online, 2020 Apr 6]. Eur J Clin Nutr. 2020. doi:10.1038/s41430-020-0625-4 |

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| Breastfeeding, expressed mother's milk, neonatology, neonatal management, mother-infant relationship | 6-Apr-20 | Breast Feeding at the Time of COVID-19: Do Not Forget Expressed Mother's Milk, Please | Archives of Disease in Children: Fetal & Neonatal Edition | Letter | This letter responds to a recent commentary by Li et al. promoting the isolation of all infants with suspected COVID-19 regardless of whether or not they present with symptoms, without details on the management of newborn feeding. Other Chinese colleagues have discouraged the use of expressed breast milk for infants with suspected COVID-19. In Switzerland, Favre et al. suggested the avoidance of direct breastfeeding by COVID-19 positive mothers due to close contact and potential aerosol transmission. However, it is important to consider that the primary concern for risk of transmission is by respiratory droplets, which can be mitigated through basic preventive measures, not by breastmilk. Second, the practice of routine maternal-neonatal separation penalizes their relationship. The use of expressed mother's milk should be considered as a second choice, to rescue the nutritional benefits of breast milk when direct breastfeeding is not recommended. Lastly, in light of limited evidence, breastmilk may contain specific antibodies that modulate eventual SARS-CoV-2 infection. | Protocols applied in maternity hospitals to prevent COVID-19 should consider the promotion of breastfeeding without disregarding the feasible option of expressing mother's milk. | Davanzo R. Breast feeding at the time of COVID-19: do not forget expressed mother's milk, please [published online, 2020 Apr 6]. Arch Dis Child Fetal Neonatal Ed. 2020. doi:10.1136/archdischild-2020-319149 |
| Pauci-symptomatic infant, epidemic settings | 6-Apr-20 | COVID-19 Infection in a Pauci-symptomatic Infant: Raising the Index of Suspicion in Epidemic Settings | Pediatric Pulmonology | Case Report | It is unclear whether children are less likely to be infected by COVID-19 or rather display fewer symptoms. This case report describes a 32-day-old boy infected by COVID-19 that presented with an upper airway infection, which resolved spontaneously and did not require any therapy. Authors argue that in epidemic settings children presenting with any mild symptom potentially attributable to COVID-19 should be considered contagious until proven otherwise, and that management must be guided by clinical conditions. | Caution dictates that children should be considered as contagious as adults, despite mild presentation. As opposed to other authors, they advocate against routine CT scans in children. | Canarutto D, Priolo A, Russo G, Pitea M, Vigone MC, Barera G. COVID-19 infection in a paucisymptomatic infant: Raising the index of suspicion in epidemic settings [published online, 2020 Apr 6]. Pediatr Pulmonol. 2020. doi:10.1002/ppul.24754 |
| Children vs. adults, comparative analysis, China | 6-Apr-20 | A Comparative-Descriptive Analysis of Clinical Characteristics in 2019-Coronavirus-infected Children and Adults | Journal of Medical Virology | Research Article | The medical records of 25 adults and 7 children with confirmed cases of 2019-nCoV ARD, managed at Xian Eighth Hospital in Shaanxi, China from January 31 to February 16, 2020, were reviewed retrospectively. All children were from family clusters. The median incubation period of children and adults was 5 days (range 3-12 days) and 4 days (range 2-12 days), respectively. Diarrhea and/or vomiting (57.1%) were more common in children, whereas for adults it was myalgia or fatigue (52%). On admission, the percentage of children having pneumonia (5, 71.4%) was roughly the same as adults (20, 80%). 20% of adults had leukopenia, but leukocytosis was more frequently in children (28.6%, P=0.014). A higher number of children had elevated creatine kinase isoenzyme (57.1% vs. 4%, P=0.004). Antiviral therapy was given to all adult patients but not to children. | This study adds to growing research that describes differences in clinical manifestations of COVID-19 infection in children and adults, by conducting comparative analysis of clinical parameters between these two groups. | Han YN, Feng ZW, Sun LN, et al. A comparative-descriptive analysis of clinical characteristics in 2019-Coronavirus-infected children and adults [published online, 2020 Apr 6]. J Med Virol. 2020. doi:10.1002/jmv.25835 |
| Children, newborn, infants, clinical characteristics, epidemiology, Korea | 6-Apr-20 | Epidemiology and Clinical Features of Coronavirus Disease 2019 in Children | Clinical and Experimental Pediatrics | Review Article | Pediatric COVID-19 accounts for a small percentage of patients with outbreaks and is often milder than adults but can progress to severe disease in some cases. Even neonates can suffer from COVID-19, and children may play a role as a spreader in the community. In this review, authors summarize what is known about COVID-19 in children and adolescents until now. | Authors review published data on the epidemiological and clinical features of COVID-19 in neonates, infants, and children, within and outside of China since the start of the outbreak. | Choi SH, Kim HW, Kang JM, et al. Epidemiology and Clinical Features of Coronavirus disease 2019 in Children [published online, 2020 Apr 6]. Clin Exp Pediatr. 2020. doi:10.3345/cep.2020.00535 |

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| Pediatrics, epidemiology, children vs. adults, symptomology, hospitalization, United States, CDC | 6-Apr-20 | Coronavirus Disease 2019 in Children - United States, February 12 - April 2, 2020 | Morbidity and Mortality Weekly Report | Report | In this preliminary description of 2572 pediatric U.S. COVID-19 cases (occurring during Feb 12 - April 2, 2020), 5.7% of children (aged <18 years) with COVID-19 were hospitalized. 73% of children reportedly experienced fever, cough, or shortness of breath, compared to 93% of adults (aged 18-64 years). Severe outcomes have been reported in children, including 3 deaths. These data support research from China that suggest that pediatric COVID-19 cases might be less severe than cases in adults and that children might experience different symptoms than adults. Social distancing and preventive behaviors remain important for all age groups because asymptomatic patients and those with less serious illness play roles in disease transmission. | This is the first analysis of disease characteristics of pediatric cases in the U.S. Figures are included in the report. | Coronavirus Disease 2019 in Children — United States, February 12–April 2, 2020. MMWR Morb Mortal Wkly Rep. ePub: 6 April 2020. DOI: http://dx.doi.org/10.15585/mmwr.mm6914e4external icon |
| Pregnancy, cardio-myopathy, echo-cardiogram, | 3-Apr-20 | Two Cases of Coronavirus 2019-related Cardiomyopathy in Pregnancy | American Journal of Obstetrics & Gynecology MFM | Case Series | Two of an initial 7 pregnant patients with confirmed severe SARS-CoV-2 infection (28.6%; 95% CI, 8.2%–64.1%) developed cardiac dysfunction with moderately reduced left ventricular ejection fractions of 40%–45% and hypokinesis. Patient 1 remains intubated and ventilated in the intensive care unit. Patient 2 delivered a newborn via cesarean delivery, and both remain isolated from the general postpartum population. Viral myocarditis and cardiomyopathy have also been reported in nonpregnant COVID-19 patients. An echocardiogram should be performed for all pregnant women with COVID-19 pneumonia, in particular those needing oxygen or those who are critically ill, to ascertain more data on the incidence of cardiomyopathy from COVID-19 in pregnancy. | This series reports two cases of cardiomyopathy in pregnant women with severe COVID-19. | Juusela A, Nazir M, Gimovsky M. Two cases of coronavirus 2019-related cardiomyopathy in pregnancy [published online, 2020 Apr 3]. Am J Obstet Gynecol MFM. 2020. doi:10.1016/j.ajogmf.2020.100113 |
| Neonates, NICU, mother-child separation, precautionary principle | 3-Apr-20 | Dilemmas and Priorities in the Neonatal Intensive Care Unit During the COVID-19 Pandemic | Danish Medical Journal | Editorial | In most countries, pre-term and sick newborns admitted to the neonatal intensive care unit (NICU) are considered at risk of severe disease. The infant is regarded as potentially infected if the mother is known to have COVID-19 during birth, and some countries recommend separation of the mother and child. Approximately 10% of all newborns need transfer to the NICU, often immediately after delivery, thus the COVID-19 pandemic raises several dilemmas for families and newborn health care professionals. The authors of this editorial suggest operating around a basic principle of not separating families; a precautionary principle of assessing risk of viral transmission for infants, parents, and staff; and a holistic principle of considering family situation and resources. | In managing the challenges raised by the COVID-19 pandemic, NICU providers must maintain principles of high-quality care for infants and families. | Breindahl M, Zachariassen G, Christensen PS, Hinriksen TB. Dilemmas and Priorities in the Neonatal Intensive Care Unit during the COVID-19 Pandemic. Dan Med J. 2020;67(4):A205021. |
| Malnutrition, nutritional support, oral nutritional supplements, Vitamin D, Whey proteins | 3-Apr-20 | Early Nutritional Supplementation in Non-Critically Ill Patients Hospitalized for the 2019 Novel Coronavirus Disease (COVID-19): Rationale and Feasibility of a Shared Pragmatic Protocol | Nutrition | Special Report | Considering the deleterious consequences of malnutrition, which certainly can affect patients with COVID-19, the aim of this article is to present a pragmatic protocol for early nutritional supplementation of non-critically ill patients hospitalized for COVID-19 disease. It is based on the observation that most patients present at admission with severe inflammation and anorexia leading to a drastic reduction of food intake, and that a substantial percentage develops respiratory failure requiring non-invasive ventilation or even continuous positive airway pressure. In addition to high-calorie dense diets with highly digestible foods available for hospitalized patients, authors recommend oral supplementation of whey proteins and IV infusion of multivitamin, multimineral, and trace elements solutions at admission. In the presence of 25-hydroxyvitamin D deficit, cholecalciferol should be promptly supplied. If nutritional risk is detected, protein-calorie oral nutritional supplements should be provided. If respiratory conditions worsen, supplemental or total parenteral nutrition should be prescribed. | Nutritional care may be overlooked despite being potentially beneficial to clinical outcomes and effective in preventing the consequences of malnutrition in patients with COVID-19. Authors present a pragmatic approach to providing oral and intravenous nutritional support for this population. | Caccialanza R, Laviano A, Lobascio F, et al. Early nutritional supplementation in non-critically ill patients hospitalized for the 2019 novel coronavirus disease (COVID-19): Rationale and feasibility of a shared pragmatic protocol [published online, 2020 Apr 3]. Nutrition. 2020. doi:10.1016/j.nut.2020.110835 |

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| Vitamin D, micronutrients, nutritional supplementation, Ireland | 3-Apr-20 | Optimisation of Vitamin D Status for Enhanced Immuno-protection Against Covid-19 | Irish Medical Journal | Review | Vitamin D deficiency is associated with increased risk of acute viral respiratory infection and community acquired pneumonia. Correction of vitamin D deficiency is thought to suppress CD26, a putative adhesion molecule for COVID-19 host cell invasion. Vitamin D may also attenuate interferon gamma and interleukin-6 inflammatory responses, both potent predictors of poorer outcome in critically ill ventilated patients including those with COVID-19. Supplementation with doses up to 100µg/d has been shown to be safe for adults. | Vitamin D supplementation is thought to suppress a putative adhesion molecule for COVID-19 host cell invasion and attenuate inflammatory responses. Safe doses of supplementation for children remain to be determined. | McCartney DM, Byrne DG. Optimisation of Vitamin D Status for Enhanced Immuno-protection Against Covid-19. Ir Med J. 2020;113(4):58. Published 2020 Apr 3. |
| Breastfeeding indications, Italy, Europe | 3-Apr-20 | Breastfeeding and Coronavirus Disease-2019. Ad interim indications of the Italian Society of Neonatology endorsed by the Union of European Neonatal & Perinatal Societies. | Maternal & Child Nutrition | Review Article | Recommendations from the Italian Society of Neonatology indicate that for a mother with suspected or confirmed COVID-19 who is asymptomatic or pauci-symptomatic at delivery, rooming-in is feasible and direct breastfeeding is advisable under strict measures of infection control. However, when a mother with COVID-19 is too sick to care for the newborn, the neonate should be managed separately and fed fresh expressed breast milk, with no need to pasteurize it since human milk is not believed to be a vehicle of COVID-19. This guidance is subject to change. | Recommendations from Italy align with WHO guidelines surrounding breastfeeding with COVID-19. | Davanzo R, Moro G, Sandri F, Agosti M, Moretti C, Mosca F. Breastfeeding and Coronavirus Disease-2019. Ad interim indications of the Italian Society of Neonatology endorsed by the Union of European Neonatal & Perinatal Societies [published online, 2020 Apr 3]. Matern Child Nutr. 2020;e13010. doi:10.1111/mcn.13010 |
| Pediatric pulmonology, underlying lung disease, cystic fibrosis, asthma, asymptomatic presentation | 3-Apr-20 | Lessons unfolding from pediatric cases of COVID-19 disease caused by SARS-CoV-2 infection. | Pediatric Pulmonology | Editorial | Total numbers of symptomatic pediatric cases lag dramatically behind adult cases, suggesting a protective effect of age. Theories explaining this effect include differences in pediatric immune response or differences in airway epithelial cell make-up, affecting the availability of viral binding sites. With regard to highly vulnerable patients with underlying lung disease, cystic fibrosis (CF) is rare in the Chinese populations, so the effect of COVID-19 on CF patients remains to be seen. Minimizing cough related to asthma could reduce the potential aerosolization of the virus in an asymptomatic carrier. Since children are more likely to be asymptomatic and are less likely to report symptoms of COVID-19, focusing on the pediatric population to prevent disease spread is critical. | Perspectives from pediatric pulmonologists on how to care for patients emphasize caring for the most vulnerable with underlying lung disease. | Yonker LM, Shen K, Kinane TB. Lessons unfolding from pediatric cases of COVID-19 disease caused by SARS-CoV-2 infection [published online, 2020 Apr 3]. Pediatr Pulmonol. 2020. doi:10.1002/ppul.24748 |
| Child, isolation period, respiratory viral shedding, China | 3-Apr-20 | The isolation period should be longer: Lesson from a child infected with SARS-CoV-2 in Chongqing, China. | Pediatric Pulmonology | Case Report | A 7-year-old child with SARS-CoV-2 infection in Chongqing, outside of Wuhan, Hubei province, was reported following the rapid spread of disease. This case suggested that children infected with SARS-CoV-2 are more likely to present milder manifestations than adults, thus children serve as potential sources of infection. The RT-PCR assay results for SARS-CoV-2 in the child's throat swab samples consistently tested positive over a course of 20 days, suggesting a prolonged period of viral shedding in children, which may call for an isolation period for suspected child cases that is longer than 14 days. | Another report on prolonged shedding of viral nucleic acid in throat samples from children suggests that longer isolation periods (>14 days) may be needed for suspected pediatric cases. | Lin J, Duan J, Tan T, Fu Z, Dai J. The isolation period should be longer: Lesson from a child infected with SARS-CoV-2 in Chongqing, China [published online, 2020 Apr 3]. Pediatr Pulmonol. 2020.. doi:10.1002/ppul.24763 |

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| Breastfeeding, donor milk, donor milk banking, breast pump, surface contamination, disinfection | 3-Apr-20 | Safe Handling of Containers of Expressed Human Milk in all Settings During the SARS-CoV-2 (COVID-19) Pandemic | Journal of Human Lactation | Insights into Practice and Policy | COVID-19 virus contaminates surfaces from respiratory droplet spread. For known coronaviruses, viral lifespan ranges up to 9 days, depending on volume of inoculation, material inoculated, temperature, and humidity. van Doremalen et al. (2020) found that SARS-CoV-2 was more stable on plastic and stainless steel than on copper and cardboard; viable virus was detected up to 72 hours after application to these surfaces although the virus titer was greatly reduced. Since mothers express their milk into a variety of plastic or glass containers, inadvertent viral spread must be avoided during container transfer to milk banks or other locations, through handwashing guidelines before and after expressing milk. Containers must be disinfected after milk expression with viricidal agents or appropriate bleach solutions (such as "high level disinfection" of 0.5% sodium hypochlorite solution, according to WHO) before storage in milk banks, hospital wards, day care centers, or similar locations. | This report provides detailed information on recommended disinfection procedures for breast milk containers, among other hygiene precautions for mothers expressing milk. | Marinelli KA, Lawrence RM. Safe Handling of Containers of Expressed Human Milk in all Settings During the SARS-CoV-2 (COVID-19) Pandemic [published online, 2020 Apr 3]. J Hum Lact. 2020. doi:10.1177/0890334420919083 |
| Children, inflammatory response, cytokine storm | 3-Apr-20 | COVID-19 in children and altered inflammatory responses | Nature Pediatric Research | Editorial | Possible reasons for differences in severity of disease between adults and children may relate to receptors in the Renin-angiotensin system (RAS) and altered inflammatory responses to pathogens. Studies of pediatric septic shock have shown differences in gene profiles, transcriptomic response, and the ontogeny of cytokine production, which provide infants and children with protection from pathogens with reduced cytokine storms. Information on individualized immune response as well as further understanding of sepsis and immune responses in different age groups would be useful to initiate targeted immunotherapies. | This article relates the evolving conversation around the role of immune response in COVID-19 to the pediatric population, offering additional explanations for age-related differences in severity of disease. | Molloy, E.J., Bearer, C.F. COVID-19 in children and altered inflammatory responses. Pediatr Res. 2020. https://doi.org/10.1038/s41390-020-0881-y |
| Pediatrics, pediatricians, underlying illness | 3-Apr-20 | Coronavirus Disease 2019 and Children: What Pediatric Health Care Clinicians Need to Know | JAMA Pediatrics | Viewpoint | Children are typically more susceptible to influenza complications but have experienced lower-than-expected rates of COVID-19, which may be due to decreased exposure to the virus, decreased infection due to immunity to other coronaviruses, or decreased likelihood of illness even when infected. Clinical symptoms of COVID-19 appear similar to those in adults, and infection from asymptomatic children is possible. Underlying illness, like asthma, may increase children's susceptibility to disease. Pediatric health care clinicians should make accommodations to minimize exposures for children with special health care needs, as well as advocating to limit the expansion of health disparities, for example, by finding ways to maintain nutrition for those dependent on school lunches. | A review of what is currently known about COVID-19 in children calls for pediatricians to take an active stance in advocating for child needs, such as nutritional support. | Rasmussen SA, Thompson LA. Coronavirus Disease 2019 and Children: What Pediatric Health Care Clinicians Need to Know [published online, 2020 Apr 3]. JAMA Pediatr. 2020. doi:10.1001/jamapediatrics.2020.1224 |
| Nutrition support, comorbidities, lymphopenia, hypoalbuminemia, poor nutritional status, malnutrition, rehabilitation | 2-Apr-20 | Nutrition Support in the Time of SARS-CoV-2 (COVID-19) | Nutrition | Editorial | Nutrition is part of the treatment regimen for acute and chronic diseases and applies particularly to ailments for which an etiologic treatment has not yet been discovered and validated. The 2014–2016 Ebola virus outbreak in Western Africa demonstrated that immediate supportive care significantly reduces case fatality rates. This may apply as well to the current SARS-CoV-2 pandemic. Emerging evidence shows that COVID-19 is associated with negative outcomes in older, comorbid, and hypoalbuminemic patients, which are associated with impaired nutritional status and sarcopenia. Lymphopenia, which is a marker of malnutrition, is a negative prognostic factor in patients with COVID-19. Albumin circulating levels should not be considered as a nutritional marker in patients with inflammatory response, but a recent report revealing that a low prealbumin level predicts | COVID-19 risk factors of older age and comorbidities are associated with poor nutritional status. In addition, lymphopenia and low prealbumin levels, markers of malnutrition, predict poor prognosis in COVID-19 patients. This protocol reviews | Laviano A, Koverech A, Zanetti M. Nutrition support in the time of SARS-CoV-2 (COVID-19) [published online, 2020 Apr 2]. Nutrition. 2020. doi:10.1016/j.nut.2020.110834 |

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| | | | | | progression to acute respiratory distress syndrome suggests that poor nutritional intake contributes to the outcome. Authors present a pragmatic protocol for the delivery of nutrition therapy in pre-ICU patients with COVID-19, during a critical period of intervention before progression to more severe clinical manifestations. Nutrition must also be considered during the rehabilitation of COVID-19 survivors with post-ventilation-acquired dysphagia and ICU-acquired weakness. | strategies for delivery of nutrition therapy in patients with COVID-19. | |
| Vitamin D supplementation, Vitamin C, ascorbic acid, cathelicidin, prevention, influenza | 2-Apr-20 | Evidence That Vitamin D Supplementation Could Reduce Risk of Influenza and COVID-19 Infections and Deaths | Nutrients | Review | This article reviews the role of vitamin D in reducing the risk of respiratory tract infections, namely influenza, through mechanisms like inducing cathelicidins and defensins that can lower viral replication rates and reducing concentrations of pro-inflammatory cytokines that produce the cytokine storm. Evidence supporting the role of vitamin D in reducing risk of COVID-19 includes that the outbreak occurred in winter, a time when 25-hydroxyvitamin D (25(OH)D) concentrations are lowest; that the number of cases in the Southern Hemisphere near the end of summer are low; that vitamin D deficiency has been found to contribute to acute respiratory distress syndrome; and that case-fatality rates increase with age and with chronic disease comorbidity, both of which are associated with lower 25(OH)D concentration. To reduce risk of infection, it is recommended that people at risk of influenza and/or COVID-19 consider Vitamin D supplementation. Higher doses may be useful for treatment as well. | Based on literature related to Vitamin D supplementation and influenza, authors recommend Vitamin D supplementation to reduce risk for COVID-19 infection. RCTs and large population studies must be conducted to evaluate these recommendations. | Grant WB, Lahore H, McDonnell SL, et al. Evidence that Vitamin D Supplementation Could Reduce Risk of Influenza and COVID-19 Infections and Deaths. Nutrients. 2020;12(4):E988. Published 2020 Apr 2. doi:10.3390/nu12040988 |
| Pediatrics, detection, China | 2-Apr-20 | Detection of Covid-19 in Children in Early January 2020 in Wuhan, China. | New England Journal of Medicine | Correspondence | Authors conducted a retrospective analysis of 366 hospitalized children (≤16 years) at three branches of Tongji Hospital in Wuhan, from January 7 to January 15, 2020. The most frequently detected pathogens in children were influenza A virus (in 23 patients [6.3%]) and influenza B virus (in 20 [5.5%]). SARS-CoV-2, the virus that causes Covid-19, was detected in 6 patients (1.6%). All six children had previously been completely healthy. Laboratory investigations showed that the levels of lymphocytes, white cells, and neutrophils were below the normal range in six, four, and three patients, respectively. Four of the six patients had pneumonia, as assessed radiographically by CT scan. One child was admitted to the pediatric intensive care unit and received pooled immune globulin from healthy donors. All the patients were treated empirically with antiviral agents, antibiotic agents, and supportive therapies. All patients recovered after hospitalization for a median of 7.5 days | Findings from this retrospective analysis indicate that SARS-CoV-2 infections in children were occurring early in the epidemic. | Liu W, Zhang Q, Chen J, et al. Detection of Covid-19 in Children in Early January 2020 in Wuhan, China. N Engl J Med. 2020;382(14):1370–1371. doi:10.1056/NEJMc2003717 |
| Vertical transmission, pregnancy, neonatal infection | 2-Apr-20 | Vertical Transmission of Coronavirus Disease 19 (COVID-19) From Infected Pregnant Mothers to Neonates: A Review | Fetal and Pediatric Pathology | Review | Authors reviewed the risk of vertical transmission of COVID-19 by using data from published articles or official websites up to March 4, 2020. A total of 31 infected pregnant mothers with COVID-19 from Iran and China were reported. No COVID-19 infection was detected in their neonates or placentas. Two mothers died from COVID-19-related respiratory complications after delivery. Based on currently limited data, there is no evidence for intrauterine transmission of COVID-19 from infected pregnant women to their fetuses. Mothers may be at increased risk for more severe respiratory complications. | This review of current literature on vertical transmission suggests a lack of evidence for intrauterine transmission. | Karimi-Zarchi M, Neamatzadeh H, Dastgheib SA, et al. Vertical Transmission of Coronavirus Disease 19 (COVID-19) from Infected Pregnant Mothers to Neonates: A Review [published online, 2020 Apr 2]. Fetal Pediatr Pathol. 2020;1–5. doi:10.1080/15513815.2020.1747120 |

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| Pregnancy, uncomplicated delivery, neonate, United States | 1-Apr-20 | An Uncomplicated Delivery in a Patient with Covid-19 in the United States | New England Journal of Medicine | Correspondence | A 34-year-old woman presented to the labor and delivery unit with a 3-day history of fever, chills, dry cough, and myalgia. She reported decreased fetal movements during the past day. Chest radiographs showed reticular interstitial opacities, and laboratory tests were unremarkable except for lymphopenia. Tests for COVID-19 were determined to be positive 21 hours after samples were obtained. On hospital day 3, she had an uncomplicated spontaneous vaginal delivery. Delayed cord clamping was not performed, and skin-to-skin contact between the mother and infant was not permitted. There was no evidence of neonatal or intra-amniotic infection. The neonate was moved to a separate room and remained there until discharge. The neonate was fed with formula and expressed breast milk. | This case describes an uncomplicated, vaginal delivery of a healthy neonate in a woman with COVID-19. Skin-to-skin contact was not allowed. The neonate was isolated following delivery and fed with formula and expressed breast milk. | Iqbal SN, Overcash R, Mokhtari N, et al. An Uncomplicated Delivery in a Patient with Covid-19 in the United States [published online, 2020 Apr 1]. N Engl J Med. 2020. doi:10.1056/NEJMc2007605 |
| Hepatitis A vaccine, seroprevalence, cross-reactivity, infants, maternal antibodies | 1-Apr-20 | Can Hepatitis A Vaccine Provide Protection Against COVID-19? | Experimental and Clinical Transplantation | Review | Based on numbers of total confirmed cases, it seems that the global COVID-19 pandemic has spared some countries like India, Pakistan, countries of the African continent, and South America. Although many confounding factors can affect these results, a main difference among these countries may be another infectious agent, which can cause high seroprevalence among populations in countries that have endemic disease or are vaccinated routinely, such as hepatitis A virus (HAV), another RNA virus. In contrast with low-income countries, overall HAV seroprevalence was shown to be 19% in the English population, similar to other high-income countries where HAV has become uncommon. In consideration of children, greater severity of COVID-19 in young infants may be explained by the waning of maternal anti-HAV antibodies towards the end of the first year of life. The HAV vaccine is highly immunogenic and may protect against COVID-19 infection through the possibility of adaptive immune cross-reaction. | Asymptomatic cases of COVID-19 could indirectly indicate protection due to HAV seropositivity. Infants affected with severe COVID-19 may have weakened immune systems due to waning maternal anti-HAV antibodies. Further studies must confirm the use of HAV vaccine to cross-protect against COVID-19. | Sarialioglu F, Belen Apak FB, Haberal M. Can Hepatitis A Vaccine Provide Protection Against COVID-19?. Exp Clin Transplant. 2020;18(2):141–143. doi:10.6002/ect.2020.0109 |
| Nutritional supplementation, vitamin C, chronic kidney disease | 1-Apr-20 | Impact of Nutrition and Diet on COVID-19 Infection and Implications for Kidney Health and Kidney Disease Management | Journal of Renal Nutrition | Editorial | The nutrition community must consider certain nutrients and food patterns that could prevent COVID-19 infection or mitigate its severity. Meta-analyses suggest a consistent and statistically significant benefit of vitamin C to prevent the common cold and support respiratory defense mechanisms. Fava beans contain chemical compounds similar to quinine-based antimalarial medications, which are being used in COVID-19 infected persons. For patients with chronic kidney disease (CKD), in particular, adequate protein and calorie intake, enterally or parenterally, is recommended. Studies in patients with CKD have shown positive outcomes from dietary intervention with omega-3, calcitriol for patients with vitamin D deficiency, melatonin, beta-glucan, and cholecalciferol. | While this article focuses primarily on dietary interventions to support patients with CKD, it also supports supplementation of antioxidants to promote immune function in patients with COVID-19. | Kalantar-Zadeh K, Moore LW. Impact of Nutrition and Diet on COVID-19 Infection and Implications for Kidney Health and Kidney Disease Management [published online, 2020 Apr 1]. J Ren Nutr. 2020. doi:10.1053/j.jrn.2020.03.006 |
| Children, asymptomatic, clinical characteristics, breastfeeding | 1-Apr-20 | COVID-19 Virus and Children: What Do We Know? | Archives de Pédiatrie | Editorial | As of March 3, 2020, there are more than 900 confirmed pediatric cases, but currently no child under 10 years of age has died; only one individual between 10 and 19 years of age died, and only one child under 1 year old was reported to have a severe form of the disease. The number of confirmed pediatric cases is very low, and the severity and mortality rates are even lower, compared to adults. There is no systematic sampling series in asymptomatic persons, and the age distribution of asymptomatic patients is not detailed in the literature. Do children represent less severe cases, are they less infected, or are they being underdiagnosed as less symptomatic? | Based on existing knowledge around COVID-19 in children, this article raises the question of whether children represent less severe cases, are less infected, or are being underdiagnosed as | Morand A, Fabre A, Minodier P, et al. COVID-19 virus and children: What do we know?. Arch Pediatr. 2020;27(3):117–118. doi:10.1016/j.arcped.2020.03.001 |

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| | | | | | Symptoms in children include fever, pneumonia, and upper respiratory signs. Symptomatic care is often sufficient, but antibiotic treatment of bacterial superinfection may be necessary. A higher risk of preterm birth is reported in pregnant women, and maternal infection could be involved in neonatal distress; one neonate died, but his specimens tested negative for COVID-19 by RT-PCR. Breastfeeding, with proper hygiene precautions, should be encouraged. If a mother is too tired to breastfeed, milk should be expressed using breast pumps so that a healthy caregiver may feed the infant. | asymptomatic? Breastfeeding is encouraged with appropriate hygiene precautions. | |
| Neonatal infection, sepsis, family cluster | 1-Apr-20 | Novel coronavirus in a 15-day-old neonate with clinical signs of sepsis, a case report | Infectious Diseases | Case Report | A 15-day-old neonate was admitted with fever, lethargy, cutaneous mottling, and respiratory distress without cough. His mother had symptoms of Novel coronavirus. RT-PCR assay was performed, and the neonate's pharyngeal sample tested positive for SARS-CoV-2. Blood, urine, and stool cultures were negative. The newborn was isolated and subjected to supportive care. Antibiotic and antiviral treatment was initiated. Eventually, the neonate was discharged in good general condition. | This case report adds to literature on early-onset SARS-CoV-2 in neonates, with exposure from parent(s). | Kamali Aghdam M, Jafari N, Eftekhari K. Novel coronavirus in a 15-day-old neonate with clinical signs of sepsis, a case report [published online, 2020 Apr 1]. Infect Dis. 2020;1–3. doi:10.1080/23744235.2020.1747634 |
| NICU, donor milk bank, breastfeeding, skin-to-skin contact, United States, CDC, WHO | 1-Apr-20 | U.S. NICUs and Donor Milk Banks Brace for COVID-19 | The Lancet Child & Adolescent Health | Reflections | On March 28, 2020, the first infant death of the U.S. outbreak was announced in Illinois. The U.S. CDC recommends separating newborns from mothers with suspected or confirmed COVID-19. Disruptions in breastfeeding could increase babies' risk of developing necrotizing enterocolitis (NEC), a life-threatening gastrointestinal emergency that can lead to gut perforation and sepsis. Hospital visitor restrictions have further reduced newborns' opportunities for skin-to-skin touch and holding. In contrast with the CDC, WHO guidance on breastfeeding suggests that women with COVID-19 should breastfeed their newborns if they want to do so, while emphasizing respiratory hygiene (mask wearing, handwashing). Pasteurized donor milk is a vital resource for babies in NICUs whose mothers cannot provide breast milk, but donor supplies have become a concern as states and cities issue stay-at-home orders. Hospitals have begun precautionary rationing, allocating donor milk to the smallest and most at-risk preterm infants to prevent NEC. | This article discusses concerns related to breastfeeding, donor milk supply, and skin-to-skin touch during the COVID-19 pandemic. The author notes that human milk lowers risk for newborn necrotizing enterocolitis thus disruptions in breastfeeding may lead to GI emergencies. | Furlow, B. US NICUs and donor milk banks brace for COVID-19. Lancet Child & Adol Health. 2020. https://doi.org/10.1016/S2352-4642(20)30103-6 |
| Infant, isolation room, personal protective equipment, breastfeeding, hygiene precautions | 1-Apr-20 | Environment and Personal Protective Equipment Tests for SARS-CoV-2 in the Isolation Room of an Infant With Infection. | Annals of Internal Medicine | Letter | SARS-CoV-2 is suspected to spread from an infected person to a susceptible host primarily through droplets and possibly direct contact. The roles of transmission by indirect contact (fomites) or by long-range airborne route are uncertain. In this letter, authors investigate environmental contamination and potential for transmission from a 6-month-old infant with COVID-19, admitted for isolation. The isolation environment and PPE of a health care worker were sampled and tested using PCR. The infant's bedding, cot rail, and table (where baby formula and wipes were placed) situated 1 meter away were found to be positive for SARS-CoV-2, confirming that an infant with COVID-19 but without respiratory symptoms can contaminate the environment through crying or drooling. There was a downward trend of viral load with increasing distance from the infant. Despite close physical contact with the infant during feeding, no evidence of SARS-CoV-2 was detected on the health care worker's gown. | Findings suggest that SARS-CoV-2 positive infants with no respiratory symptoms, can contaminate nearby environments. Hand hygiene when caring for infants with COVID-19 is important to reduce environmental contamination. | Yung CF, Kam KQ, Wong MSY, et al. Environment and Personal Protective Equipment Tests for SARS-CoV-2 in the Isolation Room of an Infant With Infection [published online, 2020 Apr 1]. Ann Intern Med. 2020;M20-0942. doi:10.7326/M20-0942 |