

Key Terms	Date Published	Title	Journal / Source	Type of Publication	Summary & Key Points	Specific Observations	Full Citation
<i>This document will be continually updated throughout the month of May. The expected date for the next update is Tuesday, May 12, 2020 at 1pm USA ET.</i>							
Children, asymptomatic, hyperinflammatory syndrome, Kawasaki disease shock syndrome, child mortality, UK	7-May-20	Hyper-inflammatory shock in children during COVID-19 pandemic	The Lancet	Correspondence	During a period of 10 days in mid-April 2020, South Thames Retrieval Service (London, UK) noted an unprecedented cluster of eight children with hyperinflammatory shock, showing features similar to Kawasaki disease shock syndrome. Six of the eight children were of Afro-Caribbean descent, and five were boys. All children except one were well above the 75th centile for weight. Four children had known family exposure to COVID-19. All tested negative for SARS-CoV-2 infection during the course of hospitalization. Clinical presentations included unrelenting fever, variable rash, conjunctivitis, peripheral edema, and generalized extremity pain with significant gastrointestinal symptoms. All progressed to warm, vasoplegic shock, requiring hemodynamic support and mechanical ventilation for cardiovascular stabilization. One child developed arrhythmia with refractory shock and died from a large cerebrovascular infarct. Since discharge of the remaining patients, two of the children have tested positive for SARS-CoV-2 infection (including the child who died, in whom SARS-CoV-2 was detected postmortem).	A clinical picture of hyperinflammatory syndrome, with multiorgan involvement similar to Kawasaki disease shock syndrome, may represent a new phenomenon affecting previously asymptomatic children with SARS-CoV-2 infection.	Riphagen S, Gomez X, Gonzalez-Martinez C, Wilkinson N, Theocharis P. Hyperinflammatory shock in children during COVID-19 pandemic [published online 2020 May 7]. Lancet. doi:1.1016/S0140-6736(20)31094-1
Children, clinical trial enrollment, pediatric treatment	7-May-20	Inclusion of Children in Clinical Trials of Treatments for Coronavirus Disease 2019 (COVID-19)	JAMA Pediatrics	Viewpoint	Clinical trials of several therapies for COVID-19 are being rapidly designed or already enrolling patients, but few are currently enrolling children. Between February 1 and April 11, 2020, there were 275 COVID-19 interventional clinical trials registered on ClinicalTrials.gov, of which only 30 were open to any patients younger than 18 years. In addition, global large-scale trials by the National Institutes of Health and WHO plan to enroll only adults. The exclusion of children from COVID-19 clinical trials is a lost opportunity to generate timely knowledge to guide treatment of pediatric populations. Simple extrapolation from adult to pediatric patients may not account for developmental differences in pathophysiology and drug metabolism, leaving children vulnerable to ineffective dosing or possibly unsafe treatments. Past experience demonstrates that it is possible to enroll children in clinical trials during epidemics, like the 2014 Ebola epidemic.	The exclusion of children from the majority of clinical trials for COVID-19 therapies may lead to ineffective dosing or unsafe treatments, due to a lack of evidence in pediatric populations.	Hwang TJ, Randolph AG, Bourgeois FT. Inclusion of Children in Clinical Trials of Treatments for Coronavirus Disease 2019 (COVID-19) [published online 2020 May 7]. JAMA. doi:10.1001/jamapediatrics.2020.1888
Children, immune preparedness, innate immunity, natural antibodies, memory B cells	6-May-20	The immune system of children: the key to understanding SARS-CoV-2 susceptibility?	The Lancet Child & Adolescent Health	Comment	To date, there is no evidence to support a lower degree of expression or function of the SARS-CoV-2 receptor (namely ACE2) in children, who experience milder COVID-19 disease than adults. During the first years of life, frequent infections build the pool of memory T and B cells that will prevent reinfection by commonly encountered pathogens. Pediatric immune preparedness, fit to react to novel pathogens including SARS-CoV-2, might be based on the abundance of natural antibodies in children. These antibodies (mostly IgM) are generated independently of previous antigen encounters, have broad reactivity, and contain infection during the 2 weeks necessary for production of high-affinity antibodies and memory B cells. Preliminary results from a prospective study designed to test these hypotheses suggest an early polyclonal B-cell response with production of substantial numbers of plasmablasts (mostly IgM) in children. This response is not observed in adults with severe disease.	The immune preparedness of children, who are better equipped to respond to frequent, novel infection through innate immunity (e.g. natural IgM antibodies), may explain differences in COVID-19 susceptibility and disease course between children and adults.	Carsetti R, Quintarelli C, Quinti L, Mortari EP, Zumla A, Ippolito G et al. The immune system of children: the key to understanding SARS-CoV-2 susceptibility? [published online 2020 May 6]. Lancet Child & Adol Health. doi:10.1016/S2352-4642(20)30135-8

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Neonatal nutrition, breastfeeding, human milk banking	6-May-20	Maintaining safety and service provision in human milk banking: a call to action in response to the COVID-19 pandemic	The Lancet Child & Adolescent Health	Comment	A Virtual Communication Network of milk bank leaders formed on March 17, 2020, and now has more than 80 members from 34 countries. Data collated from regional and country leads show that more than 800,000 infants are estimated to receive donor milk worldwide annually. The group actively discusses COVID-19-specific challenges and has developed mitigation strategies to ensure donor milk safety and service continuation, which will shortly be made available as a publication. Unlike HIV, where transmission via breastfeeding was a source of infection, there is no evidence to support SARS-CoV-2 transmission from human milk, and the virus is inactivated by heat treatment. In line with WHO recommendations, the promotion of breastfeeding and a human milk diet, using donor milk bank resources, must be prioritized as an essential component of early newborn care.	A Virtual Communication Network of international milk bank leaders considers issues related to the provision of donor milk services during the COVID-19 pandemic and provides guidance around breastfeeding.	Shenker N, on behalf of the Virtual Collaborative Network of Human Milk Banks and Associations. Maintaining safety and service provision in human milk banking: a call to action in response to the COVID-19 pandemic [published online 2020 May 6]. Lancet Child & Adol Health. doi:10.1016/S2352-4642(20)30134-6
Fetal surgery, perinatal management, vertical transmission	6-May-20	Fetal Diagnosis and Therapy During the COVID-19 Pandemic: Guidance on Behalf of the International Fetal Medicine and Surgery Society	Fetal Diagnosis and Therapy	Original Paper	This review discusses potential modifications to obstetric management and fetal procedures in both SARS-CoV-2 negative and positive patients with fetal anomalies or disorders. Most fetal therapies are time sensitive and cannot be delayed. If personnel and resources are available, procedures of proven benefit should continue to be offered, acknowledging any fetal and maternal risks, including those to health care workers. There is, to date, minimal, unconfirmed evidence of spontaneous vertical transmission, though it may theoretically be increased with some procedures. It is important to know a mother's preoperative SARS-CoV-2 status to avoid or defer certain procedures while she is contagious. Some fetal conditions may alternatively be managed neonatally. Counseling regarding fetal interventions that carry the possibility of additional intra- or postoperative morbidity must be provided in the context of local resource availability.	Fetal interventions of proven benefit should continue to be offered, taking into account the added maternal and fetal risks presented by positive SARS-CoV-2 status.	Deprest J, Choolani M, Chervenak F, et al. Fetal Diagnosis and Therapy during the COVID-19 Pandemic: Guidance on Behalf of the International Fetal Medicine and Surgery Society [published online, 2020 May 6]. Fetal Diagn Ther. 2020;1-10. doi:10.1159/000508254
Children, clinical characteristics, epidemiology, chest CT lesions, discharge criteria, China	6-May-20	A Single-Center, Retrospective Study of COVID-19 Features in Children: A Descriptive Investigation	BMC Medicine	Research Article	Among 50 children with positive SARS-CoV-2 RT-PCR tests, admitted to Wuhan Children's Hospital, five had negative results initially but showed positive results in subsequent tests. Eight (16%) patients had lymphopenia, seven (14%) had thrombocytopenia, four (8%) had lymphocytosis, two (4%) had thrombocytosis, ten (20%) had elevated C-reactive protein, four (8%) had hemoglobin above, and six (12%) had below standard reference values. Seven (14%) of the 50 had no radiologic evidence of disease on chest CT. For the 43 patients who had abnormal CT findings, in addition to previously reported patterns of ground-glass opacity (67%), local patchy shadowing (37%), local bilateral patchy shadowing (21%), and lesion location of lower lobes (65%), other CT features showed an overwhelming number of pediatric patients with lesions in the subpleural area (95%), and 22 of the 28 lower lobe lesions were in the posterior segment (78%). Lesions were not completely absorbed in 67% of the 15 patients who received a chest CT at discharge, and 26% of these patients had CT lesions that were either unchanged or worse. All 15 patients had normal body temperatures, no clinical symptoms, and consecutive negative PCR tests at discharge.	This retrospective study concludes that CT is a powerful tool to detect and characterize COVID-19 pneumonia but has little utility in evaluating clinical recovery for children, prior to discharge.	Ma H, Hu J, Tian J, et al. A single-center, retrospective study of COVID-19 features in children: a descriptive investigation. BMC Med. 2020;18(1):123. Published 2020 May 6. doi:10.1186/s12916-020-01596-9

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Children, super spreaders, transmission, community testing, family clusters, school closures	5-May-20	Children Are Not COVID-19 Super Spreaders: Time to Go Back to School	Archives of Disease in Childhood	Viewpoint	Early contact tracing data from Shenzhen, China appeared to confirm a role for children in COVID-19 transmission; however, in some regions where widespread community testing has been implemented (e.g. South Korea, Iceland), children are significantly underrepresented in the number of positive cases among the general populations. Thus, evidence is emerging that children could be less likely to become infected than adults. Alternatively, children could have a more transient upper respiratory infection with minimal viral shedding; data on family clusters have shown that children are not likely to be the index case in households. Currently, children do not appear to be super spreaders but until there is high-quality sero-surveillance data, these questions cannot be answered with certainty.	Based on studies of widespread community testing and family clusters, the authors argue that children do not appear to play a significant role in COVID-19 transmission.	Munro APS, Faust SN. Children are not COVID-19 super spreaders: time to go back to school [published online, 2020 May 5]. Arch Dis Child. 2020. doi:10.1136/archdischild-2020-319474
Children, renin-angiotensin-aldosterone system, cardiovascular disease, chronic kidney disease	5-May-20	ACE2, COVID-19, and ACE Inhibitor and ARB Use During the Pandemic: The Pediatric Perspective	Hypertension	Original Article	This review highlights the relationship of COVID-19 and the use of ACE inhibitors and angiotensin II receptor blockers (ARB) to treat chronic kidney and cardiovascular disease, from a pediatric perspective. A summary of the renin-angiotensin-aldosterone system and review of the literature pertaining to the ACE2/Angiotensin-(1-7) pathway in children are provided. Currently, there is no evidence that children who are taking ACE inhibitors or ARBs are at increased risk of SARS-CoV-2 infection or severe disease. Given the proven benefits of these medications, especially for youth with chronic conditions, many scientific societies affirm the continued use of these agents.	ACE inhibitors and angiotensin II receptor blockers have not been conclusively shown to increase risk of SARS-CoV-2 infection and should continue to be used in children with chronic conditions.	South AM, Brady TM, Flynn JT. ACE2, COVID-19, and ACE Inhibitor and ARB Use during the Pandemic: The Pediatric Perspective [published online, 2020 May 5]. Hypertension. 2020. doi:10.1161/HYPERTENSION.AHA.120.15291
Pregnancy, questionnaire, systematic screening, Italy	5-May-20	Effectiveness of a COVID-19 Screening Questionnaire for Pregnant Women at Admission to an Obstetric Unit in Milan	International Journal of Gynaecology & Obstetrics	Brief Communication	Sutton et al. reported on universal testing with nasopharyngeal swabs to detect severe SARS-CoV-2 infection in 215 women admitted for delivery at the Presbyterian Allen Hospital in New York, USA. However, this approach is only feasible in major hospitals in high-resource countries with efficient lab facilities in-house. An alternative approach is considered in this report from a COVID-19 maternity hub in Milan, Italy. This facility opted for systematic screening for SARS-CoV-2 using a specific questionnaire, administered at obstetrics admission; suspected cases underwent nasopharyngeal swab testing and were managed as suspected COVID-19 cases until results were available. Of 139 women screened (between April 1-9, 2020) using this questionnaire, 6 (4.3%) were considered suspected cases while the remaining 133 (95.7%) were not. Nasopharyngeal swab results were positive in 2 suspected cases and 1 woman with an unremarkable screening response. This screening approach may be less efficient in areas where the absolute rate of undetected COVID-19 cases would be markedly higher.	A COVID-19 maternity hub in Milan, Italy employed a questionnaire to systematically screen for suspected cases of SARS-CoV-2 among pregnant women at obstetrics admission. This is an inexpensive and possibly effective tool in settings with relatively lower incidence.	Tassis B, Lunghi G, Frattaruolo MP, Ruggiero M, Somigliana E, Ferrazzi E. Effectiveness of a COVID-19 screening questionnaire for pregnant women at admission to an obstetric unit in Milan [published online, 2020 May 5]. Int J Gynaecol Obstet. 2020. doi:10.1002/ijgo.13191
Pregnancy, breast milk samples, vaginal secretions, China	5-May-20	Coronavirus Disease 2019 Among Pregnant Chinese Women: Case Series Data on the Safety of Vaginal Birth and Breastfeeding [link was not working on 8 May 2020 when posted]	BJOG	Case Series	In this single center cohort study, 13 pregnant women with SARS-CoV-2 infection, diagnosed between January 31 and March 9, 2020 at Renmin Hospital, Wuhan, China, were included. Of the 13 women, 5 were in their first trimester, 3 in their second trimester, and 5 in their third trimester. Of the 5 women during their third trimester who gave birth, all delivered live newborns. Among these 5 deliveries, the primary adverse perinatal outcomes included premature delivery (n = 2) and neonatal pneumonia (n = 2). One of 9 maternal stool samples was positive for SARS-CoV-2 on RT-PCR; all 13 vaginal secretion samples in addition to 5 neonatal throat swabs and 4 neonatal anal swabs were negative. However, 1 of 3 samples of breast milk was positive by viral nucleic acid testing.	Negative SARS-CoV-2 test results for vaginal secretion specimens, from pregnant women with COVID-19, suggest that vaginal delivery may be a safe option. However, a positive breast milk sample in this study warrants further study of the risk for viral contamination.	Wu Y, Liu C, Dong L, et al. Coronavirus disease 2019 among pregnant Chinese women: Case series data on the safety of vaginal birth and breastfeeding [published online, 2020 May 5]. BJOG. 2020. doi:10.1111/1471-0528.16276

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Pregnancy, neonatal death, maternal hypoxia, ARDS, inflammatory storm, fetal myocardium, China	5-May-20	Critically Ill Pregnant Patient With COVID-19 and Neonatal Death Within Two Hours of Birth	International Journal of Gynaecology & Obstetrics	Brief Communication	Most pregnant women with COVID-19 appear to experience a milder clinical course. In contrast, the present report describes a critical case of COVID-19 in a 31-year-old pregnant woman, admitted to Xiaolan People's Hospital of Zhongshan at 35+2 weeks of pregnancy with no known comorbidity or history of chronic illness. Onset of symptoms in the patient began with a sore throat and dry cough for 4 days, followed by fever and dyspnea for half a day. Within 12 hours of hospitalization, the patient experienced rapid aggravation of disease, progressing to acute respiratory distress syndrome and septic shock. An emergency cesarean delivery was performed at the bedside, but the neonate died within two hours of birth. Maternal hypoxia may have caused sudden changes in the fetal intrauterine environment, while the inflammatory storm caused by maternal infection may have triggered a systemic immune response that attacked fetal organs. Biochemical examination of umbilical cord blood at birth revealed a marked increase in myocardial enzymes, suggesting severe damage to the fetal myocardium.	This case report describes neonatal death following emergency cesarean delivery in a pregnant woman with severe COVID-19, which progressed to ARDS and septic shock. Causes of death may relate to conditions of maternal hypoxia and inflammatory storm, leading to damage of fetal organs.	Li J, Wang Y, Zeng Y, et al. Critically ill pregnant patient with COVID-19 and neonatal death within two hours of birth [published online, 2020 May 5]. Int J Gynaecol Obstet. 2020. doi:10.1002/ijgo.13189
Female reproductive system, pregnancy, renin-angiotensin system	4-May-20	Potential Influence of COVID-19/ACE2 on the Female Reproductive System	Molecular Human Reproduction	Review	The SARS-CoV-2 virus invades the target cell by binding to angiotensin-converting enzyme (ACE) 2 and modulates the expression of ACE2 in host cells. ACE2, a pivotal component of the renin-angiotensin system, exerts its physiological functions by modulating the levels of angiotensin II (Ang II) and Ang-(1-7). In this article, authors review existing literature on the distribution and function of ACE2 in the female reproductive system, hoping to clarify the potential harm of SARS-CoV-2 to female fertility. Available evidence suggests that ACE2 is widely expressed in the ovary, uterus, vagina and placenta. Therefore, the possibility of mother-to-child and sexual transmission exists. Ang II, ACE2 and Ang-(1-7) regulate follicle development and ovulation, modulate luteal angiogenesis and degeneration, and also influence the regular changes in endometrial tissue and embryo development. Taking these functions into account, by modulating the expression of ACE2 receptors, SARS-CoV-2 may disturb female reproductive functions.	Wide expression of the ACE-2 receptor in the ovary, uterus, vagina, and placenta suggest the possibility of mother-to-child and sexual transmission of SARS-CoV-2. Binding of SARS-CoV-2 virus to the ACE-2 receptor may disrupt female reproductive functions regulated by the renin-angiotensin system.	Jing Y, Run-Qian L, Hao-Ran W, et al. Potential influence of COVID-19/ACE2 on the female reproductive system [published online, 2020 May 4]. Mol Hum Reprod. 2020. doi:10.1093/molehr/gaaa030
Neonatal infection, hypoxemia, perioral cyanosis, poor sucking, maternal expressed milk, Italy	4-May-20	Early Neonatal SARS-CoV-2 Infection Manifesting With Hypoxemia Requiring Respiratory Support	Pediatrics	Case Report	On the second day after uncomplicated vaginal delivery of a male neonate, the mother developed fever without respiratory symptoms, and her nasopharyngeal swab was positive for SARS-CoV-2. A nasopharyngeal swab obtained on the same day was also positive for the neonate, who was isolated from his mother. After 48 hours of isolation, on day 5 of life, the neonate developed perioral cyanosis and poor sucking without signs of respiratory distress. Arterial blood gas analysis demonstrated moderate hypoxia. The neonate was admitted to the NICU and placed on 30% inspired oxygen via high-flow nasal cannula, and his condition improved. He was fed maternal expressed milk by nasogastric tube for 48 hours, after which he was able to be fully fed orally. On days 15 and 21 of life, his qualitative PCR for COVID-19 remained positive.	A case of COVID-19 in a 3-day-old neonate manifested with silent hypoxemia, requiring respiratory support. The neonate was fed expressed maternal milk via nasogastric tube until he was able to be fed orally. The nasopharyngeal swab remained positive for more than two weeks, unlike previous reports showing rapid virologic clearance.	Sinelli MT, Paterlini G, Citterio M, Di Marco A, Fedeli T, Ventura ML. Early Neonatal SARS-CoV-2 Infection Manifesting With Hypoxemia Requiring Respiratory Support [published online, 2020 May 4]. Pediatrics. 2020. doi:10.1542/peds.2020-1121

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Obesity, young age, ICU admission, USA	4-May-20	Obesity could shift severe COVID-19 disease to younger ages	Lancet	Correspondence	Obesity is an underappreciated risk factor for COVID-19 and is particularly relevant in the USA, where the prevalence of obesity is around 40%, versus a prevalence of 6.2% in China, 20% in Italy, and 24% in Spain. In a dataset of 265 patients (58% male) with COVID-19 admitted to the ICU at various university hospitals at 6 sites across the country, a significant inverse correlation between age and BMI was observed. In other words, younger individuals admitted to the ICU were more likely to be obese. The median BMI was 29.3kg/m ² , with 25% exceeding a BMI of 34.7kg/m ² . Obesity can restrict ventilation by impeding diaphragm excursion, impairs immune responses to viral infection, is pro-inflammatory, and induces diabetes and oxidant stress to adversely affect cardiovascular function. The authors conclude that in populations with a high prevalence of obesity, COVID-19 will affect younger populations more than previously reported.	Younger patients with COVID-19, admitted to ICUs across various university hospitals in the USA, were more likely to be obese than older patients. Obesity warrants further attention as a pro-inflammatory risk factor for COVID-19, especially in younger individuals.	Kass DA, Duggal P, Cingolani O. Obesity could shift severe COVID-19 disease to younger ages [published online 2020 May 4]. Lancet. doi:10.1016/S0140-6736(20)31024-2
Pregnancy, antenatal, intrapartum, postpartum care, UK	4-May-20	Covid-19 and pregnancy	BMJ	Practice	The UK Royal College of Obstetricians and Gynaecologists (RCOG) recently published a set of guidelines related to COVID-19 in pregnancy, on April 17, 2020. This summary reviews the development of the guideline and key recommendations. The guideline itself summarizes the available evidence on the effects of COVID-19 on pregnant women and fetuses. It provides recommendations on the care of pregnant women with suspected or confirmed COVID-19 in the antepartum, intrapartum, and postnatal stages.	This brief summary reviews guidelines recently published by the UK Royal College of Obstetricians and Gynaecologists on caring for pregnant women with COVID-19.	Covid-19 and pregnancy. BMJ. 2020;369:m1672. Published 2020 May 4. doi:10.1136/bmj.m1672
Pediatric, neonatal resuscitation, basic life support	4-May-20	Interim Guidance for Basic and Advanced Life Support in Children and Neonates With Suspected or Confirmed COVID-19	Pediatrics	Scientific Statement	The American Heart Association, in collaboration with other organizations, has compiled interim guidance to help rescuers treat victims of cardiac arrest with suspected or confirmed COVID-19. The challenge is to ensure that patients with or without COVID-19 who experience cardiac arrest have the best possible chance of survival without compromising the safety of rescuers. The present statement applies specifically to pediatric and neonatal resuscitations, with situation- and setting-specific considerations.	These guidelines offer considerations for pediatric and resuscitation in suspected or confirmed COVID-19 patients.	Topjian A, Aziz K, Kamath-Rayne BD, et al. Interim Guidance for Basic and Advanced Life Support in Children and Neonates With Suspected or Confirmed COVID-19 [published online, 2020 May 4]. Pediatrics. 2020. doi:10.1542/peds.2020-1405
Pediatrics, ethical issues, ventilator allocation	4-May-20	Pediatric Ethical Issues During the COVID-19 Pandemic Are Not Just About Ventilator Triage	Acta Paediatrica	View	Administrators and providers worry about an overwhelming shortage in critical life-saving ventilators for adults during the COVID-19 pandemic. However, algorithms for ventilator allocation do not easily translate to pediatric medicine nor does ventilator allocation represent an urgent crisis for pediatric medicine. In this report, authors highlight underrecognized pediatric ethical concerns: other triage decisions for scarce resources (e.g. redeployment of skilled pediatric personnel to adult medicine), the negative psychosocial effects of the pandemic on children, including food insecurity, the moral and emotional toll on clinicians, and system inadequacies.	Attention has focused on triage decisions surrounding ventilator shortages for critically ill adult patients. In contrast, this report highlights ethical concerns specific to children during the COVID-19 pandemic.	Haward MF, Moore GP, Lantos J, Janvier A. Pediatric ethical issues during the COVID-19 pandemic are not just about ventilator triage [published online, 2020 May 4]. Acta Paediatr. 2020. doi:10.1111/apa.15334

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Pediatric physicians, survey, Australia, New Zealand	4-May-20	COVID-19 and Paediatric Health Services: A Survey of Paediatric Physicians in Australia and New Zealand	Journal of Paediatrics and Child Health	Original Article	The aim of this study was to assess attitudes, readiness and confidence in the early stages of the COVID-19 pandemic through an online survey of pediatric physicians and sub-specialists across Australia and New Zealand, between March 17 and 24, 2020. Of 542 respondents (an estimated 11% of the pediatric physician workforce in Australia and New Zealand), a minority (36.6%) agreed that their national response had been well coordinated; the majority (92.7%) agreed that senior-level hospital administrators were taking the situation seriously. Most reported a good understanding of the natural history of COVID-19 in children, and knowledge of where to find local information. A large proportion of physicians (86.1%) were worried about becoming infected through their work; few (5.8%) reported that they would not come to work to avoid infection. Closure of school and childcares would reduce the ability to continue work at current capacity for 23.6% of respondents.	In this survey of pediatric physicians in Australia and New Zealand, most felt informed and were willing to work despite concerns about exposure at work.	Foley DA, Kirk M, Jepp C, et al. COVID-19 and paediatric health services: A survey of paediatric physicians in Australia and New Zealand [published online, 2020 May 4]. J Paediatr Child Health. 2020. doi:10.1111/jpc.14903
Children, athletes, alveolar ventilation, immunological model	2-May-20	The First, Holistic Immunological Model of COVID-19: Implications for Prevention, Diagnosis, and Public Health Measures	Pediatric Allergy and Immunology	Review Article	In this proposed, immunological model of COVID-19, authors argue that the confrontation between SARS-CoV-2 and innate immunity is crucial in determining outcomes. Natural antibodies and other components of innate immunity are the first line of defense and must block the virus from spreading past the upper airways in the first 10-12 days from infection (5-7 days from disease onset), i.e. in the time required to prepare an efficient adaptive primary antibody response. Mannose Binding Lectin (MBL) plays a pivotal role in innate immunity as a pattern-recognition receptor and may inhibit interaction between SARS-CoV-2 and the ACE2 binding site. Serum MBL levels are distinctly higher in children (3-19 years) than adults and decline with age. In addition, natural IgM antibody levels have been shown to reach adult values in children 5 to 10 years old and decline with age, especially after the early 40s.	Authors describe key features of innate immunity (e.g. Mannose Binding Lectin, natural IgM antibodies), which form the first line of defense against viral infection and may serve a protective role in children.	Matricardi PM, Dal Negro RW, Nisini R. The first, holistic immunological model of COVID-19: implications for prevention, diagnosis, and public health measures [published online, 2020 May 2]. Pediatr Allergy Immunol. 2020. doi:10.1111/pai.13271
Neonates, postnatal infection, NICU, respiratory support modalities	2-May-20	COVID-19 and Neonatal Respiratory Care: Current Evidence and Practical Approach	American Journal of Perinatology	Review Article	Authors comprehensively review current evidence regarding COVID-19 perinatal transmission, respiratory outcomes of neonates born to mothers with COVID-19 and infants with documented SARS-CoV-2 infection, and the evidence for using different respiratory support modalities and aerosol-generating procedures in this specific population. The results demonstrated that to date, neonatal COVID-19 infection is uncommon, generally acquired postnatally, and associated with favorable respiratory outcomes. The reason why infants display a milder spectrum of disease remains unclear. Nonetheless, the risk of severe or critical illness in young patients exists. Currently, the recommended respiratory approach for infants with suspected or confirmed infection is not evidence based but should include all routinely used types of support, with the addition of viral filters, proper personal protective equipment, and separation of infants with suspected or confirmed COVID-19 from their mothers and placement in isolation rooms, ideally with negative pressure.	This report outlines current evidence on neonatal COVID-19, including recommended approaches for respiratory support for neonates with suspected or confirmed infection.	Shalish W, Lakshminrusimha S, Manzoni P, Keszler M, Sant'Anna GM. COVID-19 and Neonatal Respiratory Care: Current Evidence and Practical Approach [published online, 2020 May 2]. Am J Perinatol. 2020. doi:10.1055/s-0040-1710522

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Neonatal, late onset infection, pregnancy, breastfeeding, maternal antibodies, Italy	2-May-20	Neonatal Late Onset Infection With Severe Acute Respiratory Syndrome Coronavirus 2	American Journal of Perinatology	Short Communication	This observational study aimed to evaluate post-discharge SARS-CoV-2 status of newborns (born to pregnant women with COVID-19) who were negative for SARS-CoV-2 infection at birth. Of seven pregnant women with documented SARS-CoV-2 infection, one woman had a spontaneous abortion at 8 weeks of gestational age, four women recovered and are still in follow-up, and two women delivered, at term and pre-term respectively. At birth and 3 days of life, both neonates were negative for SARS-CoV-2 infection. At the 15-day follow-up, one newborn tested positive on nasopharyngeal swab, although he was asymptomatic. This newborn had been breastfed by his mother, who wore a mask while recovering from COVID-19. Since breast milk samples tested negative, respiratory secretions were the likely source of late-onset neonatal infection. Authors speculate that SARS-CoV-2 IgG antibodies (documented at birth in neonatal blood) protected the newborn from symptomatic infection, preserving the benefits of breastfeeding. At follow-up, the second newborn tested negative for SARS-CoV-2 on nasopharyngeal and rectal swabs and had been fed expressed milk by his father. These findings highlight the importance of long-term follow-up of newborns to mothers with COVID-19 in pregnancy.	This case report describes one case of late-onset, asymptomatic neonatal infection, following delivery by a COVID-19 positive mother. It is possible that maternal SARS-CoV-2 IgG antibodies, documented in neonatal blood at birth, protected the newborn from a symptomatic course of infection.	Buonsenso D, Costa S, Sanguinetti M, et al. Neonatal Late Onset Infection with Severe Acute Respiratory Syndrome Coronavirus 2 [published online, 2020 May 2]. Am J Perinatol. 2020. doi:10.1055/s-0040-1710541
Pregnancy, maternal morbidity, critical care, mechanical ventilation, USA	1-May-20	Care of Critically Ill Pregnant Patients With COVID-19: A Case Series	American Journal of Obstetrics and Gynecology	Research Letter	This retrospective, multi-center case series describes 5 symptomatic pregnant women with positive SARS-CoV-2 testing and requiring critical care. Women were in their late second (n=3) or third (n=2) trimester. At the end of the study period, 1 woman is still critically ill and hasn't delivered, 3 had uncomplicated cesarean delivery, and 1 was discharged and is receiving close outpatient follow up. Intubation timing ranged from 7-14 days from symptom onset in these cases. Various oxygen delivery methods, including high flow nasal cannula, noninvasive positive pressure ventilation, and endotracheal intubation, can all be utilized safely in pregnancy. For intubated patients with COVID-19, timing of delivery must balance maternal and neonatal risk and benefit, with delivery considered a potential tool to improve ventilation due to physiologic changes associated with pregnancy. There is limited evidence to guide specific management around fetal monitoring, administration of antenatal corticosteroids, and delivery in patients with COVID-19.	This case series presents strategies for management of critically ill pregnant women with COVID-19, using various oxygen delivery methods.	Hirshberg A, Kern-Goldberger AR, Levine LD, et al. Care of critically ill pregnant patients with COVID-19: a case series [published online, 2020 May 1]. Am J Obstet Gynecol. 2020. doi:10.1016/j.ajog.2020.04.029
Immuno-compromised children, immunomodulatory therapy, UK NICE	1-May-20	Covid-19 Is No Worse in Immunocompromised Children, Says NICE	BMJ	News	The UK National Institute for Health and Care Excellence (NICE) recently issued a guideline, stating that "COVID-19 usually causes a mild, self-limiting illness in children and young people, even in those who are immunocompromised." NICE advises continuation of usual treatment with reduced face-to-face contact where safely possible, as well as discussion between patients and providers regarding the risks and benefits of initiating immuno-modulatory therapies. Patients taking drugs that affect the immune response may have atypical presentations of COVID-19; for example, patients taking prednisolone may not develop fever. In addition, the guidelines warn against the use of empirical antibiotics, unless there is clinical suspicion of bacterial infection or co-infection.	This news report describes recent rapid guidelines from the UK on caring for immuno-compromised children during the COVID-19 pandemic. Existing data suggests that immuno-compromised children are not at higher risk for severe disease.	Wise J. Covid-19 is no worse in immunocompromised children, says NICE. BMJ. 2020;369:m1802. Published 2020 May 1. doi:10.1136/bmj.m1802

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Child, sickle cell disease, acute chest syndrome, anti-human IL-6 receptor monoclonal antibody	1-May-20	Dramatic Improvement After Tocilizumab of a Severe COVID-19 in a Child With Sickle Cell Disease and Acute Chest Syndrome	American Journal of Hematology	Correspondence	Tocilizumab (TCZ) was administered to a 16-year-old girl with homozygous sickle cell disease (SCD) who developed severe COVID-19 associated with acute chest syndrome and pulmonary embolism. On admission, levels of C-reactive protein, lactate dehydrogenase, and D-dimer were increased. The patient required non-invasive ventilation, red blood cell exchange transfusion followed by simple transfusion, and anticoagulation. Plasma levels of pro-inflammatory IL-6 were extremely high and increased further, after TCZ injection, before decreasing. The patient's respiratory status, as well as CT pulmonary angiography imaging, improved dramatically following TCZ treatment.	Tocilizumab, an anti-human IL-6 receptor monoclonal antibody, appears to be safe and effective treatment for severe COVID-19 and acute chest syndrome in children with sickle cell disease.	Odièvre MH, de Marcellus C, Ducou Le Pointe H, et al. Dramatic improvement after Tocilizumab of a severe COVID-19 in a child with sickle cell disease and acute chest syndrome [published online, 2020 May 1]. Am J Hematol. 2020. doi:10.1002/ajh.25855
Neonatal management, infection control, telehealth, routine follow-up, China	1-May-20	Neonatal Management During the Coronavirus Disease (COVID-19) Outbreak: The Chinese Experience	NeoReviews	Article	This article reviews published information from Chinese pediatric and neonatal societies regarding their approach to neonatal management during the 2019-2020 COVID-19 outbreak in China. These approaches include consensus guidelines focused on perinatal infection prevention and high-risk neonatal transport, as well as strategies for transitioning routine neonatal outpatient follow-up to an online program.	This review summarizes infection control measures and telehealth strategies for routine, neonatal follow-up, published by Chinese pediatric and neonatal societies.	Ma X, Zhu J, Du L. Neonatal Management During the Coronavirus Disease (COVID-19) Outbreak: The Chinese Experience. Neoreviews. 2020;21(5):e293-e297. doi:10.1542/neo.21-5-e293
Pediatric pulmonology, pediatric care, podcast	1-May-20	Brief Report: International Perspectives on the Pediatric COVID-19 Experience	Pediatric Pulmonology	Commentary	On March 31, 2020, the International Committee of the American Thoracic Society Pediatrics Assembly recorded an online podcast, during which pediatric pulmonologists worldwide shared their experience on COVID-19 in children. The aim was to share personal experience in organizing pediatric care in different health care settings globally, protecting health care workers, and isolation practices. This manuscript summarizes the common themes of the podcast which centered around three main topics: more benign clinical disease and progression in pediatric cases compared to adults, a strong need for strategies to protect health care workers, and social or economic disparities as a barrier to successful pandemic control.	International pediatric pulmonologists discuss clinical characteristics of COVID-19 in children, strategies to protect health care workers, and the role of socioeconomic disparities in the pandemic.	Yilmaz O, Gochicoa-Rangel L, Blau H, et al. Brief report: International perspectives on the pediatric COVID-19 experience [published online, 2020 May 1]. Pediatr Pulmonol. 2020. doi:10.1002/ppul.24800
Children, age-related susceptibility, thymus, adaptive immune system, prolonged viral elimination	1-May-20	Why the SARS-Cov-2 Has Prolonged Spreading Time in Children?	Pediatric Pulmonology	Letter to the Editor	Aging presents structural and functional loss, affecting the immune system. Thymus hypoplasia and the gradual decrease in both function and number of T cell/T _{reg} cells in the elderly increase susceptibility to viral infections. In contrast, in children, the thymus is active and associated with an adequate adaptive immune response, shaped dynamically by vaccines and common viral infections in childhood. This controlled and organized immune response protects children from severe tissue damage but also makes viral elimination more difficult, resulting in prolonged elimination time as observed in existing case studies.	This letter supports the hypothesis that a more functional thymus and a controlled, adaptive immune response prevents children from severe COVID-19 related tissue damage but contributes to prolonged viral elimination time.	Yurttutan S, İpek S, Güllü UU. Why the SARS-Cov-2 has prolonged spreading time in children? [published online, 2020 May 1]. Pediatr Pulmonol. 2020. doi:10.1002/ppul.24795
Children, pediatric emergency department, clinical characteristics, epidemiology, Italy	1-May-20	Children with Covid-19 in Pediatric Emergency Departments in Italy	New England Journal of Medicine	Correspondence	The Coronavirus Infection in Pediatric Emergency Departments (CONFIDENCE) study involved a cohort of 100 Italian children (<18 years) with COVID-19, confirmed by RT-PCR testing of nasal or nasopharyngeal swabs. Children were assessed between March 3 and March 27, 2020 in 17 pediatric emergency departments. The median age of the children was 3.3 years (Range: 0-17.5 years). Exposure to SARS-CoV-2 from an unknown source or from a source outside the child's family accounted for 55% of the cases of infection. Common symptoms were cough (in 44% of the patients)	Most children with COVID-19 in this Italian cohort had mild disease. No deaths were reported. Notably, the incidence of transmission through family cluster exposure	Parri N, Lenge M, Buonsenso D. Children with Covid-19 in Pediatric Emergency Departments in Italy [published online, 2020 May 1]. NEJM. doi:10.1056/NEJMc2007617

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					and no feeding or difficulty feeding (in 23%). Among the entire cohort, 21% of patients were asymptomatic, 58% had mild disease, 19% had moderate disease, 1% had severe disease, and 1% were in critical condition. Of the 9 patients who received respiratory support, 6 had coexisting conditions. No deaths were reported. A total of 38% of the patients were admitted to the hospital because of symptoms, irrespective of the severity of disease.	was lower in this cohort, compared to previously studied cohorts in other countries.	
Pregnancy, mother-newborn separation, breastfeeding, infection control, prenatal clinics	1-May-20	Coronavirus Disease 2019 (COVID-19) and Pregnancy: Responding to a Rapidly Evolving Situation	Obstetrics & Gynecology	Current Commentary	Although guidelines for pregnant women from the American College of Obstetricians and Gynecologists and the Centers for Disease Control and Prevention have been rapidly developed based on the best available evidence, additional information is critically needed to inform key decisions, such as whether pregnant health care workers should receive special consideration, whether to temporarily separate infected mothers and their newborns, and whether it is safe for infected women to breastfeed. Some current recommendations are well supported, based largely on what we know from seasonal influenza: patients should avoid contact with ill persons, avoid touching their face, cover coughs and sneezes, wash hands frequently, disinfect contaminated surfaces, and stay home when sick. Prenatal clinics should ensure all pregnant women and their visitors are screened for fever and respiratory symptoms, and symptomatic women should be isolated from well women and required to wear a mask. The authors recommend that as COVID-19 rapidly spreads, obstetricians must keep up to date on the latest information; although guidelines for pregnant women have been rapidly developed, many questions remain.	This review discusses current guidelines for infection control in pregnant women.	Rasmussen SA, Jamieson DJ. Coronavirus Disease 2019 (COVID-19) and Pregnancy: Responding to a Rapidly Evolving Situation. <i>Obstet Gynecol.</i> 2020;135(5):999-1002. doi:10.1097/AOG.0000000000003873