# Evidence Search Service Results of your search request

## Covid 19 transmission at birth

**ID of request:** 24343  
**Date of request:** 1st July, 2020  
**Date of completion:** 18th July, 2020

If you would like to request any articles or any further help, please contact:  Igor Brbre at [igor.brbre@nhs.net](mailto:igor.brbre@nhs.net)

Please acknowledge this work in any resulting paper or presentation as: Evidence search: Covid 19 transmission at birth. Igor Brbre. (18th July, 2020). BRIGHTON, UK: Brighton and Sussex Library and Knowledge Service.

**Date range used** (5 years, 10 years): 2019 onwards   
**Limits used** (gender, article/study type, etc.): none   
**Search terms and notes** (full search strategy for database searches below):

Relevant natural language and controlled vocabulary terms were selected and combined. Thesaurus terms were adapted for different databases. Final result sets were de-duplicated.

|  |  |  |
| --- | --- | --- |
| Database & dates covered | Date searched | Hits |
| Ovid MEDLINE(R) ALL 1946 to July 10, 2020 | 14/7/2020 | 167 |
| Ovid Embase 1974 to 2020 Week 28 | 14/7/2020 | 166 |
| NLM LitCovid | 14/7/2020 | 136 |
| Google Scholar, 2019-2020 | 14/7/2020 | First 100 |
| Web of Science Core Collection: Citation Indexes, 2019-2020 | 15/7/2020 | 69 |
| TRIP database, since 2019 | 15/7/2020 | 61 |
| Cochrane COVID-19 Study Register | 15/7/2020 | 71 |
| PubMed | 16/7/2020 | 200 |
| Totals |  | 970 pre-deduplication  388 deduplicated |

Medline

Ovid MEDLINE(R) ALL 1946 to July 10, 2020

|  |  |  |
| --- | --- | --- |
| 1 | exp coronavirus/ | 20521 |
| 2 | exp Coronavirus Infections/ | 20490 |
| 3 | ((corona\* or corono\*) adj1 (virus\* or viral\* or virinae\*)).ti,ab,kw,kf. | 1427 |
| 4 | (coronavirus\* or coronovirus\* or coronavirinae\* or CoV).ti,ab,kw,kf. | 29221 |
| 5 | ("2019-nCoV\*" or 2019nCoV\* or "19-nCoV\*" or 19nCoV\* or nCoV2019\* or "nCoV-2019\*" or nCoV19\* or "nCoV-19\*" or "COVID-19\*" or COVID19\* or "COVID-2019\*" or COVID2019\* or "HCoV-19\*" or HCoV19\* or "HCoV-2019\*" or HCoV2019\* or "2019 novel\*" or Ncov\* or "n-cov" or "SARS-CoV-2\*" or "SARSCoV-2\*" or "SARSCoV2\*" or "SARS-CoV2\*" or SARSCov19\* or "SARS-Cov19\*" or "SARSCov-19\*" or "SARS-Cov-19\*" or SARSCov2019\* or "SARS-Cov2019\*" or "SARSCov-2019\*" or "SARS-Cov-2019\*" or SARS2\* or "SARS-2\*" or SARScoronavirus2\* or "SARS-coronavirus-2\*" or "SARScoronavirus 2\*" or "SARS coronavirus2\*" or SARScoronovirus2\* or "SARS-coronovirus-2\*" or "SARScoronovirus 2\*" or "SARS coronovirus2\*" or covid).ti,ab,kw,kf. | 30762 |
| 6 | (respiratory\* adj2 (symptom\* or disease\* or illness\* or condition\*) adj5 (Wuhan\* or Hubei\* or China\* or Chinese\* or Huanan\*)).ti,ab,kw,kf. | 278 |
| 7 | (("seafood market\*" or "food market\*") adj10 (Wuhan\* or Hubei\* or China\* or Chinese\* or Huanan\*)).ti,ab,kw,kf. | 69 |
| 8 | (pneumonia\* adj3 (Wuhan\* or Hubei\* or China\* or Chinese\* or Huanan\*)).ti,ab,kw,kf. | 451 |
| 9 | ((outbreak\* or wildlife\* or pandemic\* or epidemic\*) adj1 (Wuhan\* or Hubei\* or China\* or Chinese\* or Huanan\*)).ti,ab,kw,kf. | 259 |
| 10 | "severe acute respiratory syndrome\*".ti,ab,kw,kf. | 8072 |
| 11 | or/1-10 | 53503 |
| 12 | limit 11 to yr="2019 -Current" | 34061 |
| 13 | Infectious Disease Transmission, Vertical/ | 15926 |
| 14 | ((transplacental or "trans-placental" or placental or vertical or "mother-to-child" or intrauter\*) adj3 (transmi\* or infect\*)).ti,ab,kw,kf. | 18035 |
| 15 | (vertical adj3 infectio\* adj3 transmi\*).ti,ab,kw,kf. | 329 |
| 16 | MTCT.ti,ab,kw,kf. | 1104 |
| 17 | (congenital adj3 infect\*).ti,ab,kw,kf. | 5837 |
| 18 | or/13-17 | 31867 |
| 19 | and/12,18 | 167 |

For more information about the resources please go to: <https://www.bsuh.nhs.uk/library/>.

## Contents

[A. Original Research](#Content5)

1. [2019 novel coronavirus—important information for clinicians](#Research696154)
2. [A case report of neonatal 2019 coronavirus disease in China](#Research696377)
3. [A case report of neonatal COVID-19 infection in China](#Research696340)
4. [A Comprehensive Review of Manifestations of Novel Coronaviruses in the Context of Deadly COVID-19 Global Pandemic](#Research696199)
5. [A controversial debate: Vertical transmission of COVID-19 in pregnancy](#Research696269)
6. [A new threat from an old enemy: Re-emergence of coronavirus (Review)](#Research696161)
7. [A patient with SARS-CoV-2 infection during pregnancy in Qingdao, China](#Research696379)
8. [A pregnant woman with COVID-19 in Central America](#Research696399)
9. [A prospective, randomised, double blind placebo-controlled trial to evaluate the efficacy and safety of tocilizumab in patients with severe COVID-19 pneumonia (TOC-COVID): A structured summary of a study protocol for a randomised controlled trial](#Research696322)
10. [A single-cell RNA expression map of human coronavirus entry factors](#Research696344)
11. [A Study to Evaluate the Efficacy, Safety and Tolerability of IMU-838 as Addition to Investigator's Choice of Standard of Care Therapy, in Patients With Coronavirus Disease 19 (COVID-19)](#Research696212)
12. [A study to investigate whether the experimental medication IMU-838 is safe and effective when it is given to Covid-19 patients in addition to their normal treatment](#Research696213)
13. [A systematic scoping review of COVID-19 during pregnancy and childbirth](#Research696173)
14. [A twin challenge to handle: COVID‐19 with pregnancy](#Research696327)
15. [ACE2 diversity in placental mammals reveals the evolutionary strategy of SARS-CoV-2](#Research696107)
16. [Adverse outcomes in SAR-CoV-2 (COVID-19) and SARS virus related pregnancies with probable vertical transmission](#Research696099)
17. [Advice for pregnant members of the anaesthesia and intensive care workforce during the COVID-19 pandemic](#Research696055)
18. [An Analysis of 38 Pregnant Women With COVID-19, Their Newborn Infants, and Maternal-Fetal Transmission of SARS-CoV-2](#Research696331)
19. [An update on SARS-CoV-2/COVID-19 with particular reference to its clinical pathology, pathogenesis, immunopathology and mitigation strategies](#Research696159)
20. [Analysis of complement deposition and viral RNA in placentas of COVID-19 patients](#Research696287)
21. [Analysis of Maternal Coronavirus Infections and Neonates Born to Mothers with 2019-nCoV; a Systematic Review](#Research696284)
22. [Analysis of vaginal delivery outcomes among pregnant women in Wuhan, China during the COVID-19 pandemic](#Research696252)
23. [Antibodies in infants born to mothers with COVID-19 pneumonia](#Research696400)
24. [Anxiety and depression levels among pregnant women with COVID-19](#Research696236)
25. [Appropriate care for neonates born to mothers with COVID-19 disease](#Research696359)
26. [Are Covid-19-positive mothers dangerous for their term and well newborn babies? Is there an answer?](#Research696349)
27. [Assessing the infection prevention and control measures for the prevention and management of COVID-19 in healthcare settings](#Research696040)
28. [Assessment of Obstetric, Fetal and Neonatal Risks and Vertical SARS-CoV-2 Transmission During COVID-19 Pandemic](#Research696367)
29. [Assisted Vaginal Birth](#Research696080)
30. [Association of COVID-19 with pregnancy outcomes in health-care workers and general women](#Research696227)
31. [Asymptomatic COVID-19 infection in late pregnancy indicated no vertical transmission](#Research696258)
32. [Breastfeeding and coronavirus disease-2019: Ad interim indications of the Italian Society of Neonatology endorsed by the Union of European Neonatal & Perinatal Societies](#Research696148)
33. [Breastfeeding during the COVID-19 pandemic: Suggestions on behalf of woman study group of AMD](#Research696191)
34. [Breastfeeding Guidance Post Hospital Discharge for Mothers or Infants with Suspected or Confirmed SARS-Co V-2 Infection](#Research696036)
35. [Breastfeeding of infants born to mothers with COVID-19: A rapid review](#Research696390)
36. [Breastfeeding when mothers have suspected or proven COVID-19](#Research696061)
37. [Can SARS-CoV-2 Infection Be Acquired in Utero?: More Definitive Evidence Is Needed](#Research696230)
38. [Can SARS-CoV-2-infected women breastfeed after viral clearance?](#Research696241)
39. [Care of newborns born to mothers with COVID-19 infection; a review of existing evidence](#Research696337)
40. [Care of the pregnant woman with coronavirus disease 2019 in labor and delivery: anesthesia, emergency cesarean delivery, differential diagnosis in the acutely ill parturient, care of the newborn, and protection of the healthcare personnel](#Research696093)
41. [Characterisation of COVID-19 Pandemic in Paediatric Age Group: A Systematic Review and Meta-Analysis](#Research696289)
42. [Characteristics and outcomes of pregnant women admitted to hospital with confirmed SARS-CoV-2 infection in UK: national population based cohort study](#Research696235)
43. [Characteristics of COVID-19 Infection Among PREGnant Women](#Research696215)
44. [Characteristics of Neonatal Covid-19 in Turkey](#Research696321)
45. [Chest computed tomography images of early coronavirus disease (COVID-19)](#Research696138)
46. [Chinese expert consensus on the perinatal and neonatal management for the prevention and control of the 2019 novel coronavirus infection (First edition)](#Research696376)
47. [Classification system and case definition for SARS-CoV-2 infection in pregnant women, fetuses, and neonates](#Research696336)
48. [Clinical analysis of 10 neonates born to mothers with 2019-nCoV pneumonia](#Research696409)
49. [Clinical and Immunologic Impact of Perinatal SARS-CoV-2 (COVID-19) Infection](#Research696183)
50. [Clinical characteristics and diagnostic challenges of pediatric COVID-19: A systematic review and meta-analysis](#Research696134)
51. [Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records](#Research696137)
52. [Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records: Chen H, Gun J, Wang C, et al. Lancet 2020; 395: 809-15](#Research696167)
53. [Clinical characteristics and risk assessment of newborns born to mothers with COVID-19](#Research696391)
54. [Clinical characteristics of 19 neonates born to mothers with COVID-19](#Research696254)
55. [Clinical Characteristics of Coronavirus Disease 2019 (COVID-19) in Pregnancy: the Italian Registry on Coronavirus in Pregnancy](#Research696176)
56. [Clinical characteristics of novel coronavirus disease 2019 (COVID-19) in newborns, infants and children](#Research696207)
57. [Clinical characteristics of pregnant female and juvenile patients with MERS: A systematic review](#Research696205)
58. [Clinical course of coronavirus disease-2019 in pregnancy](#Research696301)
59. [Clinical course of severe and critical COVID-19 in hospitalized pregnancies: a US cohort study](#Research696307)
60. [Clinical features and obstetric and neonatal outcomes of pregnant patients with COVID-19 in Wuhan, China: a retrospective, single-centre, descriptive study](#Research696395)
61. [Clinical features and sexual transmission potential of SARS-CoV-2 infected female patients: a descriptive study in Wuhan, China](#Research696144)
62. [Clinical management of severe acute respiratory infection when COVID-19 is suspected](#Research696039)
63. [Clinical role of lung ultrasound for the diagnosis and monitoring of COVID-19 pneumonia in pregnant women](#Research696116)
64. [Clinical update on COVID-19 in pregnancy: A review article](#Research696325)
65. [Colchicina Test in the Sars-Cov2 Coronavirus (Colcorona-Covid-19)](#Research696281)
66. [Combating sars-cov-2 through lipoxins, proteasome, caveolin and nuclear factor-kappab pathways in non-pregnant and pregnant populations](#Research696128)
67. [Comment of the potential risks of sexual and vertical transmission of Covid-19 infection](#Research696334)
68. [Complications and outcomes of SARS-CoV-2 in pregnancy: where and what is the evidence?](#Research696358)
69. [Consensus Statement on organization of routine and specialist obstetric ultrasound services in the context of COVID-19](#Research696058)
70. [Considerations and recommendations for obstetric anesthesia care during COVID-19 pandemic - Saudi anesthesia society guidelines](#Research696087)
71. [Considerations for Obstetric Care during the COVID-19 Pandemic](#Research696164)
72. [Contingency management strategies of the Nursing Department in centralized rescue of patients with coronavirus disease 2019](#Research696375)
73. [Contraception during Coronavirus-Covid 19 pandemia. Recommendations of the Board of the Italian Society of Contraception](#Research696181)
74. [Coronavirus (COVID-19) and Pregnancy: What Maternal-Fetal Medicine Subspecialists Need to Know](#Research696068)
75. [Coronavirus (COVID-19) infection and abortion care](#Research696038)
76. [Coronavirus (COVID-19) infection and pregnancy](#Research696042)
77. [Coronavirus disease (COVID‐19) and neonate: What neonatologist need to know](#Research696259)
78. [Coronavirus disease 2019 (COVID-19) and pregnancy: a systematic review](#Research696393)
79. [Coronavirus disease 2019 (COVID-19) and pregnancy: Overview and report of the first German case with COVID-19 and gestational diabetes](#Research696233)
80. [Coronavirus Disease 2019 (COVID-19) and Pregnancy: Responding to a Rapidly Evolving Situation](#Research696319)
81. [Coronavirus Disease 2019 (COVID-19) and pregnancy: what obstetricians need to know](#Research696320)
82. [Coronavirus disease 2019 (COVID-19) during pregnancy: a case series](#Research696255)
83. [Coronavirus Disease 2019 (COVID-19) During Pregnancy: Prevalence of Seroconversion, Effect on Maternal and Perinatal Outcomes and Risk of Vertical Transmission](#Research696143)
84. [Coronavirus disease 2019 (COVID-19) in pregnant women: A report based on 116 cases](#Research696384)
85. [Coronavirus disease 2019 (COVID-19) pandemic and pregnancy](#Research696147)
86. [Coronavirus disease 2019 during pregnancy: a systematic review of reported cases](#Research696155)
87. [Coronavirus disease 2019 in children: Current status](#Research696218)
88. [Coronavirus disease 2019 in pregnancy](#Research696315)
89. [Coronavirus Disease 2019 in Pregnancy: A Clinical Management Protocol and Considerations for Practice](#Research696257)
90. [Coronavirus disease 2019 in pregnant women: a report based on 116 cases](#Research696385)
91. [Coronavirus disease-19 and fertility: viral host entry protein expression in male and female reproductive tissues](#Research696348)
92. [Coronavirus in pregnancy and delivery: rapid review](#Research696286)
93. [Coronavirus infection and pregnancy (Covid-19)](#Research696118)
94. [COVID 19 in neonates](#Research696223)
95. [COVID-19 - guidance for neonatal settings](#Research696052)
96. [COVID-19 - guidance for paediatric services](#Research696054)
97. [COVID-19 and HELLP: Overlapping Clinical Pictures in Two Gravid Patients](#Research696185)
98. [COVID-19 and Neonatal Respiratory Care: Current Evidence and Practical Approach](#Research696338)
99. [COVID-19 and newborn health: systematic review](#Research696166)
100. [COVID-19 and Obstetric Transmission](#Research696368)
101. [COVID-19 and pregnancy - where are we now? A review](#Research696318)
102. [COVID-19 and pregnancy: a review of current knowledge](#Research696268)
103. [COVID-19 and Pregnant Patients](#Research696043)
104. [COVID-19 and Special Populations](#Research696044)
105. [COVID-19 and the 5G Conspiracy Theory: Social Network Analysis of Twitter Data](#Research696083)
106. [COVID-19 and the production of knowledge regarding recommendations during pregnancy: a scoping review](#Research696273)
107. [COVID-19 and viral hepatitis elimination programs: Are we stepping backward?](#Research696224)
108. [COVID-19 Contact Study - Immunoreaction after possible SARS-CoV-2 COVID-19 contact](#Research696275)
109. [COVID-19 in a 26-week preterm neonate](#Research696308)
110. [COVID-19 in Children, Pregnancy and Neonates: A Review of Epidemiologic and Clinical Features](#Research696304)
111. [COVID-19 in children: Current status](#Research696217)
112. [Covid-19 in Pregnancy: a French Population-based Cohort of Women and Newborns](#Research696095)
113. [COVID-19 in pregnancy: Risk of adverse neonatal outcomes](#Research696276)
114. [COVID-19 in Pregnant Women and Neonates: A Systematic Review of the Literature with Quality Assessment of the Studies](#Research696365)
115. [COVID-19 infection during pregnancy: fetus as a patient deserves more attention](#Research696350)
116. [COVID-19 Patient Positioning Pragmatic Trial](#Research696369)
117. [COVID-19 pneumonia and pregnancy; a systematic review and meta-analysis](#Research696226)
118. [COVID-19 pneumonia in an Iraqi pregnant woman with preterm delivery](#Research696085)
119. [COVID-19 Registered Trials – and analysis](#Research696045)
120. [COVID-19 related obstetric and neonatal outcome study (CRONOS)](#Research696372)
121. [COVID-19 Suggestions for the care of the perinatal population](#Research696053)
122. [Covid-19: ASRM Recommendations For Reducing The Risk Of Viral Transmission During Fertility Treatment With The Use Of Autologous Gametes](#Research696069)
123. [Covid-19: Clinical guide for the temporary reorganisation of intrapartum maternity care during the coronavirus pandemic](#Research696051)
124. [Covid-19: Immunity after SARS-CoV-2 infection](#Research696041)
125. [COVID-19: lessons to date from China](#Research696260)
126. [COVID-19: Operational framework for maternity and neonatal services](#Research696070)
127. [COVID-19: Personal Protective Equipment (PPE)](#Research696046)
128. [Covid-19: Recommendations for GDM screening and oral glucose tolerance test (OGTT) during pregnancy and postpartum](#Research696071)
129. [COVID-19: review of case reports](#Research696292)
130. [Covid-19: The time to shield all pregnant frontline workers is now](#Research696112)
131. [COVID-19 and Treg/Th17 imbalance: Potential relationship to pregnancy outcomes](#Research696290)
132. [COVID19 and Breastfeeding: Not That Simple](#Research696106)
133. [Cultural orientation, power, belief in conspiracy theories, and intentions to reduce the spread of COVID-19](#Research696108)
134. [Current epidemiology and guidance for COVID-19 caused by SARS-CoV-2 virus, in children: March 2020](#Research696049)
135. [Current Knowledge on Covid-19 in Children - Cautious Optimism](#Research696347)
136. [Current State of Knowledge About SARS-CoV-2 and COVID-19 Disease in Pregnant Women](#Research696198)
137. [Delivery in asymptomatic Italian woman with SARS-CoV-2 infection](#Research696152)
138. [Delivery in pregnant women infected with SARS-CoV-2: A fast review](#Research696295)
139. [Delivery room considerations for infants born to mothers with suspected or proven COVID-19](#Research696063)
140. [Detection of COVID-19 in a Vulvar Lesion](#Research696324)
141. [Detection of SARS-CoV-2 in Follicular Fluid and Cumulus-oocyte-complexes in COVID-19 Patients](#Research696113)
142. [Detection of SARS-COV-2 in Placental and Fetal Membrane Samples](#Research696299)
143. [Development of child immunity in the context of COVID-19 pandemic](#Research696234)
144. [Dilemmas and Priorities in the Neonatal Intensive Care Unit during the COVID-19 Pandemic](#Research696111)
145. [Disappearance of SARS-CoV-2 Antibodies in Infants Born to Women with COVID-19, Wuhan, China](#Research696189)
146. [Does the human placenta express the canonical cell entry mediators for SARS-CoV-2?](#Research696310)
147. [Does the maternal-fetal transmission of SARS-CoV-2 occur during pregnancy?](#Research696172)
148. [Effect of coronavirus disease 2019 (COVID-19) on maternal, perinatal and neonatal outcome: systematic review](#Research696220)
149. [Effectiveness of social distancing strategies for protecting a community from a pandemic with a data- driven contact network based on census and real-world mobility data](#Research696079)
150. [Effects of coronavirus disease 2019 (COVID-19) on maternal, perinatal and neonatal outcomes: a systematic review](#Research696221)
151. [Effects of COVID-19 Infection during Pregnancy and Neonatal Prognosis: What Is the Evidence?](#Research696256)
152. [Effects of SARS-CoV-2 infection on pregnant women and their infants: A retrospective study in Wuhan, China](#Research696389)
153. [Efficacy and safety of siltuximab vs. corticosteroids in hospitalized patients with COVID-19 pneumonia](#Research696182)
154. [Efficacy of different treatments in patients infected with COVID-19](#Research696184)
155. [Emergency cesarean section on severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) confirmed patient](#Research696244)
156. [Emerging coronaviruses: first SARS, second MERS and third SARS-CoV-2: epidemiological updates of COVID-19](#Research696201)
157. [Endemic and Emerging Arboviruses in Domestic Ruminants in East Asia](#Research696387)
158. [Epidemiology of COVID-19](#Research696114)
159. [Epidemiology, virology, and clinical features of severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2; Coronavirus Disease-19)](#Research696296)
160. [Erratum: Department of Error (The Lancet (2020) 395(10226) (809-815), (S0140673620303603), (10.1016/S0140-6736(20)30360-3))](#Research696091)
161. [ESC Guidance for the Diagnosis and Management of CV Disease during the COVID-19 Pandemic](#Research696056)
162. [Establishment of an early warning model for maternal and child vertical transmission of COVID-19 infection](#Research696361)
163. [Evaluation of Ultraviolet-C Light for Rapid Decontamination of Airport Security Bins in the Era of SARS-CoV-2](#Research696117)
164. [Evidence and possible mechanisms of rare maternal-fetal transmission of SARS-CoV-2](#Research696169)
165. [Evidence for and against vertical transmission for SARS-CoV-2 (COVID-19)](#Research696090)
166. [Evidence for and against vertical transmission for severe acute respiratory syndrome coronavirus 2](#Research696096)
167. [Evidence of mother-to-newborn infection with COVID-19](#Research696355)
168. [Evidence summary for natural history of COVID-19 in children](#Research696072)
169. [Evidence summary for placental transfer of antibodies](#Research696077)
170. [Experience of Clinical Management for Pregnant Women and Newborns with Novel Coronavirus Pneumonia in Tongji Hospital, China](#Research696378)
171. [Expert consensus for managing pregnant women and neonates born to mothers with suspected or confirmed novel coronavirus (COVID-19) infection](#Research696136)
172. [Extrapulmonary manifestations of COVID-19: Radiologic and clinical overview](#Research696105)
173. [Factors preventing materno-fetal transmission of SARS-CoV-2](#Research696129)
174. [Fetal Diagnosis and Therapy during the COVID-19 Pandemic: Guidance on Behalf of the International Fetal Medicine and Surgery Society](#Research696157)
175. [Fetal Transient Skin Edema in Two Pregnant Women With Coronavirus Disease 2019 (COVID-19)](#Research696190)
176. [Generation of Complete Multi-Cell Type Lung Organoids From Human Embryonic and Patient-Specific Induced Pluripotent Stem Cells for Infectious Disease Modeling and Therapeutics Validation](#Research696245)
177. [Guidance for maternal medicine in the evolving coronavirus (COVID-19) pandemic](#Research696048)
178. [Guidance on breastfeeding during the Covid-19 pandemic](#Research696119)
179. [Guidelines for pregnant women with suspected SARS-CoV-2 infection](#Research696175)
180. [Hand cleaning with ash for reducing the spread of viral and bacterial infections: a rapid review](#Research696078)
181. [Home birth during the COVID-19 pandemic](#Research696064)
182. [Homology analysis of 51 penicillin-intermediate Streptococcus pneumoniae isolates from Wenzhou City, China](#Research696402)
183. [How to reduce the potential risk of vertical transmission of SARS-CoV-2 during vaginal delivery?](#Research696123)
184. [Hydroxychloroquine Azithromycin COVID-19 Pregnancy Trial](#Research696209)
185. [Hydroxychloroquine efficacy and safety in preventing SARS-CoV-2 infection and COVID-19 disease severity during pregnancy (COVID-Preg): a structured summary of a study protocol for a randomised placebo controlled trial](#Research696195)
186. [Immunization with human cytomegalovirus core fusion machinery and accessory envelope proteins elicit strong synergistic neutralizing activities](#Research696145)
187. [Impact of COVID-19 as a vertical infection in late pregnancy](#Research696246)
188. [Impact of COVID-19 infection on pregnancy outcomes and the risk of maternal-to-neonatal intrapartum transmission of COVID-19 during natural birth](#Research696229)
189. [Impact of SARS-CoV-2 Infection During Pregnancy on Newborns and Young Children](#Research696132)
190. [Improving the quality of care in pregnancy and childbirth with coronavirus (COVID-19): a systematic review](#Research696082)
191. [IN− UTERO MOTHER− TO− CHILD SARS− CoV− 2 TRANSMISSION: viral detection and fetal immune response](#Research696177)
192. [Incidence of SARS-CoV-2 vertical transmission: a meta-analysis](#Research696192)
193. [Infants Born to Mothers With a New Coronavirus (COVID-19)](#Research696141)
194. [Infection with SARS-CoV-2 in pregnancy. Information and proposed care. CNGOF](#Research696305)
195. [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](#Research696332)
196. [Intrauterine Transmission of Sars-Cov-2 Infection in a Preterm Infant](#Research696345)
197. [Intrauterine vertical transmission of SARS-CoV-2: what we know so far](#Research696374)
198. [Is SARS-CoV-2 Vertically Transmitted?](#Research696243)
199. [Is SARS-CoV-2 Vertically Transmitted?](#Research696341)
200. [Is there evidence of intra-uterine vertical transmission potential of COVID-19 infection in samples tested by quantitative RT-PCR?](#Research696142)
201. [ISIDOG recommendations concerning COVID-19 and pregnancy](#Research696162)
202. [Isotretinoin in Treatment of COVID-19](#Research696357)
203. [Lack of maternal-fetal SARS-CoV-2 transmission](#Research696351)
204. [Lack of Vertical Transmission of Severe Acute Respiratory Syndrome Coronavirus 2, China](#Research696251)
205. [Lessons Learned so Far from the Pandemic: A Review on Pregnants and Neonates with COVID-19](#Research696270)
206. [Lung ultrasound and computed tomographic findings in pregnant woman with COVID-19](#Research696222)
207. [Lung Ultrasound in Children with COVID-19: Preliminary Findings](#Research696288)
208. [Management of Infants Born to Mothers with COVID-19](#Research696065)
209. [Management of Infants Born to Mothers with Suspected or Confirmed COVID-19](#Research696074)
210. [Management of mothers and neonates in low resources setting during covid-19 pandemia](#Research696364)
211. [Management of newborns exposed to mothers with confirmed or suspected COVID-19](#Research696089)
212. [Management of pregnant women infected with COVID-19](#Research696262)
213. [Management of the mother-infant dyad with suspected or confirmed SARS-CoV-2 infection in a highly epidemic context](#Research696309)
214. [Managing a tertiary-level NICU in the time of COVID-19: Lessons learned from a high-risk zone](#Research696126)
215. [Managing COVID-19 disease in pediatric patients](#Research696170)
216. [Managing COVID-19 Iinfection in pediatric patients](#Research696280)
217. [Managing COVID-19-Positive Maternal–Infant Dyads: An Italian Experience](#Research696328)
218. [Managing neonates with respiratory failure due to SARS-CoV-2](#Research696150)
219. [Maternal and neonatal consequences of coronavirus COVID-19 infection during pregnancy: a scoping review](#Research696121)
220. [Maternal and neonatal outcomes associated with COVID-19 infection: A systematic review](#Research696346)
221. [Maternal and Neonatal Response to COVID-19](#Research696193)
222. [Maternal and perinatal outcomes with COVID-19: A systematic review of 108 pregnancies](#Research696397)
223. [Maternal transmission of SARS-COV-2 to the neonate, and possible routes for such transmission: A systematic review and critical analysis](#Research696373)
224. [Maternal-foetal Transmission of SARS-Cov-2](#Research696130)
225. [Maternity care for mothers and babies during the COVID-19 pandemic](#Research696035)
226. [Maximizing the Calm before the Storm: Tiered Surgical Response Plan for Novel Coronavirus (COVID-19)](#Research696323)
227. [Measurement of airborne particle exposure during simulated tracheal intubation using various proposed aerosol containment devices during the COVID-19 pandemic](#Research696342)
228. [Mechanisms and evidence of vertical transmission of infections in pregnancy including SARS-CoV-2](#Research696267)
229. [Mechanisms and evidence of vertical transmission of infections in pregnancy including SARS‐CoV‐2](#Research696266)
230. [Midwives ordering testing for COVID-19](#Research696067)
231. [Mother to Child SARS-CoV-2 Transmission: Fact or Fantasy](#Research696168)
232. [Multi-centre Spanish study found no incidences of viral transmission in infants born to mothers with COVID-19](#Research696271)
233. [National active surveillance to understand and inform neonatal care in COVID-19](#Research696188)
234. [Neonatal early-onset infection with SARS-CoV-2 in 33 neonates born to mothers with COVID-19 in Wuhan, China](#Research696401)
235. [Neonatal intensive care unit preparedness for the Novel Coronavirus Disease-2019 pandemic: A New York City hospital perspective](#Research696370)
236. [Neonatal Late Onset Infection with Severe Acute Respiratory Syndrome Coronavirus 2](#Research696115)
237. [Neonatal Management During the Coronavirus Disease (COVID-19) Outbreak: The Chinese Experience](#Research696264)
238. [Neonatal Resuscitation and Postresuscitation Care of Infants Born to Mothers with Suspected or Confirmed SARS-CoV-2 Infection](#Research696133)
239. [Neonatal resuscitation where the mother has a suspected or confirmed novel coronavirus (SARS-CoV-2) infection: suggestion for a pragmatic action plan](#Research696363)
240. [New corona virus (COVID-19) management in pregnancy and childbirth](#Research696092)
241. [New evidences that discard the possible vertical transmission of SARS-CoV-2 during pregnancy](#Research696206)
242. [NICU care for infants born to mothers with suspected or proven COVID-19](#Research696062)
243. [No evidence of vertical transmission of SARS-CoV-2 after induction of labour in an immune-suppressed SARS-CoV-2-positive patient](#Research696197)
244. [No SARS-CoV-2 detected in amniotic fluid in mid-pregnancy](#Research696396)
245. [Northeast COVID-19 and Pregnancy Study Group](#Research696216)
246. [Novel Coronavirus 2019 (COVID-19)](#Research696037)
247. [Novel Coronavirus disease (COVID-19) in newborns and infants: what we know so far](#Research696151)
248. [Novel coronavirus infection in newborn babies under 28 days in China](#Research696406)
249. [Novel coronavirus-related acute respiratory distress syndrome in a patient with twin pregnancy: A case report](#Research696277)
250. [Obstetric anesthesia during the COVID-19 pandemic](#Research696103)
251. [Obstetric Management of COVID-19 in Pregnant Women](#Research696278)
252. [Obstetrics and Neonatal Outcomes in Pregnant Women with COVID-19: A Systematic Review](#Research696100)
253. [Outcome of coronavirus spectrum infections (SARS, MERS, COVID-19) during pregnancy: a systematic review and meta-analysis](#Research696160)
254. [Pediatric impact of COVID-19](#Research696247)
255. [Perceived versus proven SARS-CoV-2 specific immune responses in health care workers](#Research696104)
256. [Perinatal and neonatal management plan for prevention and control of 2019 novel coronavirus infection (1st Edition)](#Research696381)
257. [Perinatal aspects on the covid-19 pandemic: a practical resource for perinatal-neonatal specialists](#Research696279)
258. [Perinatal transmission of COVID-19 associated SARS-CoV-2: should we worry?](#Research696174)
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260. [Placental abruption in a twin pregnancy at 32 weeks' gestation complicated by COVID-19, without vertical transmission to the babies](#Research696237)
261. [Placental Pathology in COVID-19](#Research696339)
262. [Placental Pathology in Covid-19 Positive Mothers: preliminary Findings](#Research696098)
263. [Position Statement on the Management of Cardiac Electrophysiology and Cardiac Implantable Electronic Devices in Australia During the COVID-19 Pandemic: A Living Document Version 2](#Research696075)
264. [Possible impact of COVID-19 on fertility and assisted reproductive technologies](#Research696110)
265. [Possible Vertical Transmission of SARS-CoV-2 from an Infected Mother to Her Newborn](#Research696163)
266. [Potential influence of COVID-19/ACE2 on the female reproductive system](#Research696219)
267. [Potential Maternal and Infant Outcomes from (Wuhan) Coronavirus 2019-nCoV Infecting Pregnant Women: Lessons from SARS, MERS, and Other Human Coronavirus Infections](#Research696333)
268. [Pre-labor anorectal swab for SARS-CoV-2 in COVID-19 pregnant patients: is it time to think about it?](#Research696122)
269. [Pregnancy and postpartum outcomes in a universally tested population for SARS-CoV-2 in New York City: A prospective cohort study](#Research696311)
270. [Pregnancy and sars-cov-2: A novel virus in a unique population](#Research696265)
271. [Pregnancy outcomes, Newborn complications and Maternal-Fetal Transmission of SARS-CoV-2 in women with COVID-19: A systematic review](#Research696186)
272. [Pregnancy with new coronavirus infection: clinical characteristics and placental pathological analysis of three cases](#Research696139)
273. [Pregnant women with new coronavirus infection: a clinical characteristics and placental pathological analysis of three cases](#Research696140)
274. [Preterm delivery in pregnant woman with critical COVID-19 pneumonia and vertical transmission](#Research696398)
275. [Prevalence and Impact of SARS-COV-2 Infection in Pregnant Women, Fetuses and Newborns](#Research696094)
276. [Prior and novel coronaviruses, Coronavirus Disease 2019 (COVID-19), and human reproduction: what is known?](#Research696335)
277. [Probable congenital SARS-CoV-2 infection in a neonate born to a woman with active SARS-CoV-2 infection](#Research696232)
278. [Probable Vertical Transmission of SARS-CoV-2 Infection](#Research696156)
279. [Prominent changes in blood coagulation of patients with SARS-CoV-2 infection](#Research696202)
280. [Protect Pregnant and Lactating Women with COVID-19 Through Research, Not from Research](#Research696352)
281. [Protection Challenges of Pregnant Women against Vertical Transmission during COVID-19 Epidemic: A Narrative Review](#Research696204)
282. [Protocol for evidence synthesis support - COVID-19](#Research696073)
283. [Rapid systematic review of neonatal COVID-19 including a case of presumed vertical transmission](#Research696196)
284. [Rates of Maternal and Perinatal Mortality and Vertical Transmission in Pregnancies Complicated by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-Co-V-2) Infection: A Systematic Review](#Research696211)
285. [Recommendations and Practical Management of Pregnant Women with Covid-19: A Scoping Review](#Research696362)
286. [Recommendations: Prehospital Emergency Medical Services (EMS) COVID-19](#Research696047)
287. [Registry of patients with congenital bleeding and COVID-19 in madrid](#Research696086)
288. [Reply to "Potential challenges in managing obstetric patients with COVID-19"](#Research696386)
289. [Report of a series of healthy term newborns from convalescent mothers with COVID-19](#Research696303)
290. [Report of Positive Placental Swabs for SARS-CoV-2 in an Asymptomatic Pregnant Woman with COVID-19](#Research696178)
291. [Review of the SARS-CoV-2 in Wuhan and Analysis as Well as Prediction of Therapeutic Drugs](#Research696404)
292. [Risk of Maternal Feacal Contamination and How to Reduce the Potential Risk of Vertical Transmission of SARS-Cov-2 during Vaginal Delivery?](#Research696124)
293. [Risks of Novel Coronavirus Disease (COVID-19) in Pregnancy; a Narrative Review](#Research696294)
294. [Safe delivery for pregnancies affected by COVID-19](#Research696314)
295. [SARS-CoV, MERS-CoV and SARS-CoV-2 infections in pregnancy and fetal development](#Research696153)
296. [SARS-CoV-2 and human milk: What is the evidence?](#Research696238)
297. [SARS-CoV-2 entry genes are most highly expressed in nasal goblet and ciliated cells within human airways](#Research696356)
298. [SARS-CoV-2 Infection and COVID-19 During Pregnancy: A Multidisciplinary Review](#Research696291)
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304. [SARS-CoV-2 infection of the placenta](#Research696208)
305. [SARS-CoV-2 is not detectable in the vaginal fluid of women with severe COVID-19 infection](#Research696317)
306. [SARS-CoV-2 placental infection and inflammation leading to fetal distress and neonatal multi-organ failure in an asymptomatic woman](#Research696329)
307. [SARS-CoV-2, More than a Respiratory Virus: Its Potential Role in Neuropathogenesis](#Research696343)
308. [SARS-CoV-2: Is it the newest spark in the TORCH?](#Research696285)
309. [SARS‐CoV2 (COVID‐19) infection: is fetal surgery in times of national disasters reasonable?](#Research696158)
310. [Sars‐CoV‐2 in the context of past coronaviruses epidemics: Consideration for prenatal care](#Research696240)
311. [Second-Trimester Miscarriage in a Pregnant Woman With SARS-CoV-2 Infection](#Research696102)
312. [Several considerations on the establishment of a new public health and preventive medicine system in national level](#Research696250)
313. [Severe acute respiratory syndrome coronavirus 19 and human pregnancy](#Research696302)
314. [Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Infection During Pregnancy In China: a Retrospective Cohort Study](#Research696394)
315. [Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection in children and adolescents: a systematic review](#Research696125)
316. [Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Vertical Transmission in Neonates Born to Mothers With Coronavirus Disease 2019 (COVID-19) Pneumonia](#Research696210)
317. [Severe acute respiratory syndrome coronavirus 2(SARS-CoV-2) infection during late pregnancy: a report of 18 patients from Wuhan, China](#Research696403)
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319. [Severe COVID-19 during Pregnancy and Possible Vertical Transmission](#Research696088)
320. [Should Infants Be Separated from Mothers with COVID-19? First, Do No Harm](#Research696353)
321. [Single-cell RNA expression profiling of ACE2 and AXL in the human maternal-Fetal interface](#Research696407)
322. [Sonographic signs and patterns of COVID-19 pneumonia](#Research696371)
323. [Strategies to control and prevent novel coronavirus 2019: A quick overview](#Research696283)
324. [Study for the impact on fetus and neonates of vertical transmission of 2019-nCoV](#Research696366)
325. [Study of Viral Load and Maternal-fetal Serology in the Interpretation of the Vertical Transmission of SARS Cov-2 (COVID-19) During Pregnancy](#Research696131)
326. [Study on Safety and Efficacy of Favipiravir (Favipira) for COVID-19 Patient in Selected Hospitals of Bangladesh](#Research696101)
327. [Susceptibility of Armigeres subalbatus Coquillett (Diptera: Culicidae) to Zika virus through oral and urine infection](#Research696248)
328. [Systematic review of COVID-19 in children shows milder cases and a better prognosis than adults](#Research696261)
329. [Telehealth for High-Risk Pregnancies in the Setting of the COVID-19 Pandemic](#Research696097)
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331. [The clinical course of SARS-CoV-2 positive neonates](#Research696149)
332. [The diagnosis of pneumonia in a pregnant woman with coronavirus disease 2019 using maternal lung ultrasound](#Research696214)
333. [The Effects of Pregnancy on Women with COVID-19: Maternal and Infant Outcomes](#Research696330)
334. [The Emerging of CRF01\_AE: A Clinical Story and Future HIV/AIDS Situation in Thailand](#Research696380)
335. [The evolving COVID-19 pandemic: An update](#Research696200)
336. [The impact of Covid-19 pandemic on breastfeeding and birth care. The importance of recovering good practices.](#Research696239)
337. [The need for fully bio-based facemasks to counter coronavirus outbreaks: A perspective](#Research696146)
338. [The Neurology and Neuropsychiatry of COVID-19](#Research696076)
339. [The novel coronavirus (2019-nCoV) in pregnancy: What we need to know](#Research696326)
340. [The novel coronavirus (SARS-CoV-2) infections in China: prevention, control and challenges](#Research696405)
341. [The novel coronavirus SARS-COV-2 and pregnancy: Literature review](#Research696312)
342. [The Possibility of Covid-19 Vertical Transmission: Could it be Excluded?](#Research696242)
343. [The Real Impact of the Coronavirus Disease 2019 (covid-19) on the Pregnancy Outcome](#Research696194)
344. [The SARS-CoV-2 receptor ACE2 expression of maternal-fetal interface and fetal organs by single-cell transcriptome study](#Research696249)
345. [To breastfeed or not to breastfeed? Lack of evidence on the presence of SARS-CoV-2 in breastmilk of pregnant women with COVID-19](#Research696272)
346. [To study the treatment of COVID-19 with severe viral pneumonia by using purified stem cell exosomes](#Research696231)
347. [Transmission of SARS-CoV-2, Required Developments in Research and Associated Public Health Concerns](#Research696228)
348. [Transmission of SARS-CoV-2: an update of current literature](#Research696298)
349. [Transmission routes of 2019-novel coronavirus (2019-nCoV)](#Research696388)
350. [Uncertainties about the transmission routes of 2019 novel coronavirus](#Research696203)
351. [Unlikely SARS-CoV-2 vertical transmission from mother to child: A case report](#Research696300)
352. [Update on COVID-19 epidemiology and impact on medical care in children: April 2020](#Research696057)
353. [Updated advice regarding PPE to be worn when managing pregnant women with known or suspected COVID-19](#Research696050)
354. [Updated SOGC Committee Opinion – COVID-19 in Pregnancy](#Research696060)
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357. [Vertical social distancing policy is ineffective to contain the COVID-19 pandemic](#Research696165)
358. [Vertical Transmission](#Research696263)
359. [Vertical transmission and materno-fetal outcomes in 13 patients with COVID-19](#Research696274)
360. [Vertical Transmission of Coronavirus Disease 19 (COVID-19) from Infected Pregnant Mothers to Neonates: A Review](#Research696225)
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362. [Vertical transmission of COVID-19: SARS-CoV-2 RNA on the fetal side of the placenta in pregnancies with COVID-19 positive mothers and neonates at birth](#Research696297)
363. [Vertical transmission of SARS-CoV-2 infection and preterm birth](#Research696313)
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365. [Vertical Transmission of Severe Acute Respiratory Syndrome Coronavirus 2: A Systematic Review](#Research696392)
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368. [Visualization of SARS-CoV-2 virus invading the human placenta using electron microscopy](#Research696084)
369. [Water birth and hydrotherapy for pregnant people with suspected or confirmed COVID-19](#Research696066)
370. [What are the risks of COVID-19 infection in pregnant women?](#Research696316)
371. [What can we learn from neonates with COVID-19?](#Research696382)
372. [What is known about the efficacy and cost-effectiveness of copper materials to reduce transmission of viruses?](#Research696081)
373. [What paediatricians can do to support children and youth during the COVID-19](#Research696059)
374. [When Separation is not the Answer: Breastfeeding Mothers and Infants affected by COVID-19](#Research696127)
375. [Why are pregnant women susceptible to viral infection: an immunological viewpoint?](#Research696253)
376. [Application of Monoclonal Antibodies Developed Against the IpaJ Protein for Detection of Chickens Infected With Salmonella enterica Serovar Pullorum Using Competitive ELISA](#Research696032)
377. [Corona virus disease (COVID-19) and pregnancy: What obstetrician should know](#Research696029)
378. [Efficient fecal-oral and possible vertical, but not respiratory, transmission of emerging Chlamydia gallinacea in broilers](#Research696033)
379. [Evidence of prenatal toxicity of herbal based indigenous formulations for sex selection in rat models](#Research696025)
380. [Health issues in breeding gamebirds](#Research696030)
381. [History of the HIV Epidemic in China](#Research696031)
382. [Mathematical analysis and simulation of a Hepatitis B model with time delay: A case study for Xinjiang, China](#Research696034)
383. [Outbreak Of Klebsiella pneumoniae Carbapenemase-Producing Klebsiella aerogenes Strains In A Tertiary Hospital In China](#Research696027)
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386. [Perceptions of obstetricians and pediatricians about the risk of COVID-19 for pregnant women and newborns](#Research696023)
387. [Preterm delivery, maternal death, and vertical transmission in a pregnant woman with COVID-19 infection](#Research696024)
388. [SARS-CoV-2 possible contamination of genital area: implications for sexual and vertical transmission routes](#Research696022)

## A. Original Research

1. **2019 novel coronavirus—important information for clinicians**  
   Del Rio C. Jama 2020;323:1039-1040.

1. **A case report of neonatal 2019 coronavirus disease in China**  
   Wang S. Clinical Infectious Diseases 2020;:No page numbers.

1. **A case report of neonatal COVID-19 infection in China**  
   Shaoshuai W. Clinical infectious diseases: an official publication of the Infectious Diseases Society of America 2020;:No page numbers.

1. **A Comprehensive Review of Manifestations of Novel Coronaviruses in the Context of Deadly COVID-19 Global Pandemic**  
   Gulati A. American Journal of the Medical Sciences 2020;360:5-34.

Since December 2019, the global pandemic caused by the highly infectious novel coronavirus 2019-nCoV (COVID-19) has been rapidly spreading. As of April 2020, the outbreak has spread to over 210 countries, with over 2,400,000 confirmed cases and over 170,000 deaths.1 COVID-19 causes a severe pneumonia characterized by fever, cough and shortness of breath. Similar coronavirus outbreaks have occurred in the past causing severe pneumonia like COVID-19, most recently, severe acute respiratory syndrome coronavirus (SARS-CoV) and middle east respiratory syndrome coronavirus (MERS-CoV). However, over time, SARS-CoV and MERS-CoV were shown to cause extrapulmonary signs and symptoms including hepatitis, acute renal failure, encephalitis, myositis and gastroenteritis. Similarly, sporadic reports of COVID-19 related extrapulmonary manifestations emerge. Unfortunately, there is no comprehensive summary of the multiorgan manifestations of COVID-19, making it difficult for clinicians to quickly educate themselves about this highly contagious and deadly pathogen. What is more, is that SARS-CoV and MERS-CoV are the closest humanity has come to combating something similar to COVID-19, however, there exists no comparison between the manifestations of any of these novel coronaviruses. In this review, we summarize the current knowledge of the manifestations of the novel coronaviruses SARS-CoV, MERS-CoV and COVID-19, with a particular focus on the latter, and highlight their differences and similarities.Copyright © 2020 Southern Society for Clinical Investigation

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1. **A controversial debate: Vertical transmission of COVID-19 in pregnancy**  
   Mardani M. Archives of Clinical Infectious Diseases 2020;15:e102286.

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1. **A new threat from an old enemy: Re-emergence of coronavirus (Review)**  
   Docea A. O. International Journal of Molecular Medicine 2020;45:1631-1643.

The new outbreak of coronavirus from December 2019 has brought attention to an old viral enemy and has raised concerns as to the ability of current protection measures and the healthcare system to handle such a threat. It has been known since the 1960s that coronaviruses can cause respiratory infections in humans; however, their epidemic potential was understood only during the past two decades.Copyright © 2020 Spandidos Publications. All rights reserved.

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1. **A patient with SARS-CoV-2 infection during pregnancy in Qingdao, China**  
   Wen R. J Microbiol Immunol Infect 2020;:No page numbers.

1. **A pregnant woman with COVID-19 in Central America**  
   Zambrano L. I. Travel medicine and infectious disease 2020;:No page numbers.

1. **A prospective, randomised, double blind placebo-controlled trial to evaluate the efficacy and safety of tocilizumab in patients with severe COVID-19 pneumonia (TOC-COVID): A structured summary of a study protocol for a randomised controlled trial**  
   Rilinger J. Trials 2020;21:470.

OBJECTIVES: SARS-CoV2 infection leads to a concomitant pulmonary inflammation. This inflammation is supposed to be the main driver in the pathogenesis of lung failure (Acute Respiratory Distress Syndrome) in COVID-19. Objective of this study is to evaluate the efficacy and safety of a single dose treatment with Tocilizumab in patients with severe COVID-19. We hypothesize that Tocilizumab slows down the progression of SARS-CoV-2 induced pneumonia and inflammation. We expect an improvement in pulmonary function compared to placebo-treated patients. Desirable outcomes would be that tocilizumab reduces the number of days that patients are dependent on mechanical ventilation and reduces the invasiveness of breathing assistance. Furthermore, this treatment might result in fewer admissions to intensive care units. Next to these efficacy parameters, safety of a therapy with Tocilizumab in COVID-19 patients has to be monitored closely, since immunosuppression could lead to an increased rate of bacterial infections, which could negatively influence the patient's outcome. TRIAL DESIGN: Multicentre, prospective, 2-arm randomised (ratio 1:1), double blind, placebo-controlled trial with parallel group design. PARTICIPANTS: Inclusion criteria 1.Proof of SARS-CoV2 (Symptoms and positive polymerase chain reaction (PCR))2.Severe respiratory failure: a.Ambient air SpO(2) ≤ 92% orb.Need of ≥ 6l O2/min orc.NIV (non-invasive ventilation) ord.IMV (invasive mechanical ventilation)3.Age ≥ 18 years Exclusion criteria 1.Non-invasive or invasive mechanical ventilation ≥ 48 hours2.Pregnancy or breast feeding3.Liver injury or failure (AST/ALT ≥ 5x ULN)4.Leukocytes < 2 × 10(3)/μl5.Thrombocytes < 50 × 10(3)/μl6.Severe bacterial infection (PCT > 3ng/ml)7.Acute or chronic diverticulitis8.Immunosuppressive therapy (e.g. mycophenolate, azathioprine, methotrexate, biologicals, prednisolone >10mg/d; exceptions are: prednisolone ≤ 10mg/d, sulfasalazine or hydroxychloroquine)9.Known active or chronic tuberculosis10.Known active or chronic viral hepatitis11.Known allergic reactions to tocilizumab or its ingredients12.Life expectation of less than 1 year (independent of COVID-19)13.Participation in any other interventional clinical trial within the last 30 days before the start of this trial14.Simultaneous participation in other interventional trials (except for participation in COVID-19 trials) which could interfere with this trial; simultaneous participation in registry and diagnostic trials is allowed15.Failure to use one of the following safe methods of contraception: female condoms, diaphragm or coil, each used in combination with spermicides; intra-uterine device; hormonal contraception in combination with a mechanical method of contraception. The data collection of the primary follow up (28 days after randomisation) takes place during the hospital stay. Subsequently, a telephone interview on the quality of life is conducted after 6 and 12 months. Participants will be recruited from inpatients at ten medical centres in Germany. INTERVENTION AND COMPARATOR: Intervention arm: Application of 8mg/kg body weight (BW) Tocilizumab i.v. once immediately after randomisation (12 mg/kg for patients with <30kg BW; total dose should not exceed 800 mg) AND conventional treatment. Control arm: Placebo (NaCl) i.v. once immediately after randomisation AND conventional treatment. MAIN OUTCOMES: Primary endpoint is the number of ventilator free days (d) (VFD) in the first 28 days after randomisation. Non-invasive ventilation (NIV), Invasive mechanical ventilation (IMV) and extracorporeal membrane oxygenation (ECMO) are defined as ventilator days. VFD's are counted as zero if the patient dies within the first 28 days. RANDOMISATION: The randomisation code will be generated by the CTU (Clinical Trials Unit, ZKS Freiburg) using the following procedure to ensure that treatment assignment is unbiased and concealed from patients and investigator staff. Randomisation will be stratified by centre and will be performed in blocks of variable length in a ratio of :1 within each centre. The block lengths will be documented separately and will not be disclosed to the investigators. The randomisation code will be produced by validated programs based on the Statistical Analysis System (SAS). BLINDING (MASKING): Participants, caregivers, and the study team assessing the outcomes are blinded to group assignment. NUMBERS TO BE RANDOMISED (SAMPLE SIZE): 100 participants will be randomised to each group (thus 200 participants in total). TRIAL STATUS: Protocol Version: V 1.2, 16.04.2020. Recruitment began 27th April 2020 and is anticipated to be completed by December 2020. TRIAL REGISTRATION: The trial was registered before trial start in trial registries (EudraCT: No. 2020-001408-41, registered 21st April 2020, and DRKS: No. DRKS00021238, registered 22nd April 2020). FULL PROTOCOL: The full protocol is attached as an additional file, accessible from the Trials website (Additional file 1). In the interest in expediting dissemination of this material, the familiar formatting has been eliminated; this Letter serves as a summary of the key elements of the full protocol.

1. **A single-cell RNA expression map of human coronavirus entry factors**  
   Singh M. bioRxiv 2020;:No page numbers.

To predict the tropism of human coronaviruses, we profile 28 SARS-CoV-2 and coronavirus-associated receptors and factors (SCARFs) using single-cell RNA-sequencing data from a wide range of healthy human tissues. SCARFs include cellular factors both facilitating and restricting viral entry. Among adult organs, enterocytes and goblet cells of the small intestine and colon, kidney proximal tubule cells, and gallbladder basal cells appear most permissive to SARS-CoV-2, consistent with clinical data. Our analysis also suggests alternate entry paths for SARS-CoV-2 infection of the lung, central nervous system, and heart. We predict spermatogonial cells and prostate endocrine cells, but not ovarian cells, to be highly permissive to SARS-CoV-2, suggesting male-specific vulnerabilities. Early stages of embryonic and placental development show a moderate risk of infection. The nasal epithelium looks like another battleground, characterized by high expression of both promoting and restricting factors and a potential age-dependent shift in SCARF expression. Lastly, SCARF expression appears broadly conserved across human, chimpanzee and macaque organs examined. Our study establishes an important resource for investigations of coronavirus biology and pathology.

1. **A Study to Evaluate the Efficacy, Safety and Tolerability of IMU-838 as Addition to Investigator's Choice of Standard of Care Therapy, in Patients With Coronavirus Disease 19 (COVID-19)**  
   Immunic A. G. ClinicalTrials.gov 2020;:No page numbers.

At present there is no approved drug treatment for Covid-19. In this study we plan to investigate if an experimental drug called IMU-838 (vidofludimus calcium) can improve your symptoms, prevent worsening that would initiate further treatments such as ventilation, and can lower your virus number if given in addition to your doctor's choice of standard therapy. We will also test if IMU-838 has any side effects and measure the level of IMU 838 in your blood. Experimental drug means that it is not yet authorized for marketing in your country. To date approximately 600 individuals have received IMU-838 (or a drug similar to IMU-838 that contains the same active substance as IMU-838) in research studies.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=ab4b806b1badbbdec4e72ae52981bfc9)

1. **A study to investigate whether the experimental medication IMU-838 is safe and effective when it is given to Covid-19 patients in addition to their normal treatment**  
   Immunic A. G. Ictrp 2020;:No page numbers.

Objective To evaluate the efficacy of IMU-838 plus investigator’s choice of standard of care therapy (SoC) vs placebo plus SoC in the treatment of coronavirus disease 2019 (COVID-19) based on the need for invasive ventilation (INV) up to 28 days Inclusion criteria: 1. Male or female patients at least 18 years old (may be extended to include also children 12 years or older after the 1st interim analysis) 2. Admitted to the hospital or other medical in-patient treatment facility for treatment of COVID-19 The hospitalization needs to be for medical reasons (treatment of COVID-19 disease) and cannot be for social reasons or due to housing insecurity. 3. SARS-CoV-2 infection confirmed by reverse transcriptase polymerase chain reaction (RT-PCR) test in a nasopharyngeal, oropharyngeal or respiratory sample at ≤4 days before randomization 4. Moderate COVID-19 disease defined as fulfilling clinical status category 3 or 4 on the WHO 9-point ordinal scale [21]: o Category 3: Hospitalized (see note above for US only), virus-positive, no oxygen therapy with the following conditions: − The hospitalization needs to be for medical reasons (treatment of COVID-19 disease) and cannot be for social reasons or due to housing insecurity o Category 4: Hospitalized, virus-positive, oxygen by mask or nasal prongs (excluding high-flow oxygen therapy) with the following conditions: − Peripheral capillary oxyhemoglobin saturation (SpO2) >92% at maximum of 6 liters oxygen flow per minute − Stable respiratory rate ≤30 breaths/min at maximum of 6 liters oxygen flow per minute 5. Presence of at least 1 symptom characteristic for COVID-19 disease i.e., fever, cough or respiratory distress 6. Willingness and ability to comply with the protocol 7. Written informed consent given prior to any trial-related procedure 8. For women of childbearing potential: Application of a highly effective method of birth control (failure rate less than 1% per year when used consistently and correctly) together with a barrier method between trial consent and 30 days after the last intake of the IMP. Highly effective forms of birth control are those with a failure rate less than 1% per year and include: o oral, intravaginal, or transdermal combined (estrogen and progestogen containing) hormonal contraceptives associated with inhibition of ovulation o oral, injectable, or implantable progestogen-only hormonal contraceptives associated with inhibition of ovulation o intrauterine device or intrauterine hormone-releasing system o bilateral tubal occlusion o vasectomized partner (i.e., the patient’s male partner underwent effective surgical sterilization before the female patient entered the clinical trial and is the sole sexual partner of the female patient during the clinical trial) o sexual abstinence (acceptable only if it is the patient’s usual form of birth control/lifestyle choice; periodic abstinence [e.g., calendar, ovulation, symptothermal, postovulation methods] and withdrawal are no acceptable methods of contraception) Barrier methods of contraception include: o Condom o Occlusive cap (diaphragm or cervical/vault caps) with spermicidal gel/film/cream/suppository 9. Male patients must agree not to father a child or to donate sperm starting at Screening, throughout the clinical trial and for 30 days after the last intake of the IMP. Male patients must also o abstain from sexual intercourse with a female partner (acceptable only if it is the patient’s usual form of birth control/lifestyle choice), or o use adequate barrier contraception during treatment with the IMP and until at least 30 days after the last intake of the IMP, and o if they have a female partner of childbearing potential, the partner should use a highly effective contraceptive method as outlined in inclusion criterion 8 o if they have a pregnant partner, they must use condoms while taking the IMP to avoid exposure of the fetus to the IMP

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1. **A systematic scoping review of COVID-19 during pregnancy and childbirth**  
   Elshafeey F. International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics 2020;150:47-52.

BACKGROUND: Clinical presentation and outcomes of COVID-19 infection during pregnancy remain limited and fragmented., OBJECTIVES: To summarize the existing literature on COVID-19 infection during pregnancy and childbirth, particularly concerning clinical presentation and outcomes., SEARCH STRATEGY: A systematic search of LitCovid, EBSCO MEDLINE, CENTRAL, CINAHL, Web of Science, and Scopus electronic databases. The references of relevant studies were also searched., SELECTION CRITERIA: Identified titles and abstracts were screened to select original reports and cross-checked for overlap of cases., DATA COLLECTION AND ANALYSIS: A descriptive summary organized by aspects of clinical presentations (symptoms, imaging, and laboratory) and outcomes (maternal and perinatal)., MAIN RESULTS: We 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., CONCLUSION: COVID-19 infection during pregnancy probably has a clinical presentation and severity resembling that in non-pregnant adults. It is probably not associated with poor maternal or perinatal outcomes. Copyright © 2020 International Federation of Gynecology and Obstetrics.

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1. **A twin challenge to handle: COVID‐19 with pregnancy**  
   Sahu K. K. Journal of Medical Virology 2020;:No page numbers.

1. **ACE2 diversity in placental mammals reveals the evolutionary strategy of SARS-CoV-2**  
   Bibiana S. O. F. Genet Mol Biol 2020;43:e20200104.

The recent emergence of SARS-CoV-2 is responsible for the current pandemic of COVID-19, which uses the human membrane protein ACE2 as a gateway to host-cell infection. We performed a comparative genomic analysis of 70 ACE2 placental mammal orthologues to identify variations and contribute to the understanding of evolutionary dynamics behind this successful adaptation to infect humans. Our results reveal that 4% of the ACE2 sites are under positive selection, all located in the catalytic domain, suggesting possibly taxon-specific adaptations related to the ACE2 function, such as cardiovascular physiology. Considering all variable sites, we selected 30 of them located at the critical ACE2 binding sites to the SARS-CoV-like viruses for analysis in more detail. Our results reveal a relatively high diversity of ACE2 between placental mammal species, while showing no polymorphism within human populations, at least considering the 30 inter-species variable sites. A perfect scenario for natural selection favored this opportunistic new coronavirus in its trajectory of infecting humans. We suggest that SARS-CoV-2 became a specialist coronavirus for human hosts. Differences in the rate of infection and mortality could be related to the innate immune responses, other unknown genetic factors, as well as non-biological factors.

1. **Adverse outcomes in SAR-CoV-2 (COVID-19) and SARS virus related pregnancies with probable vertical transmission**  
   Bahadur G. JBRA Assist Reprod 2020;24:351-357.

1. **Advice for pregnant members of the anaesthesia and intensive care workforce during the COVID-19 pandemic**  
   Anon. ICM Anaesthesia COVID-19 2020;:No page numbers.

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1. **An Analysis of 38 Pregnant Women With COVID-19, Their Newborn Infants, and Maternal-Fetal Transmission of SARS-CoV-2**  
   Schwartz D. A. Archives of Pathology & Laboratory Medicine 2020;144:799-805.

The emergence of a novel coronavirus, termed SARS-CoV-2, and the potentially life-threatening respiratory disease that it can produce, COVID-19, has rapidly spread across the globe, creating a massive public health problem. Previous epidemics of many emerging viral infections have typically resulted in poor obstetric outcomes including maternal morbidity and mortality, maternal-fetal transmission of the virus, and perinatal infections and death. This article reviews the effects of 2 previous coronavirus infections-severe acute respiratory syndrome (SARS) caused by SARS-CoV and Middle East respiratory syndrome ( MERS) caused by MERS-CoV-on pregnancy outcomes. In addition, it analyzes literature describing 38 pregnant women with COVID-19 and their newborns in China to assess the effects of SARS-CoV-2 on the mothers and infants, including clinical, laboratory, and virologic data, and the transmissibility of the virus from mother to fetus. This analysis reveals that unlike coronavirus infections of pregnant women caused by SARS and MERS, in these 38 pregnant women COVID-19 did not lead to maternal deaths. Importantly, and similar to pregnancies with SARS and MERS, there were no confirmed cases of intrauterine transmission of SARS-CoV-2 from mothers with COVID-19 to their fetuses. All neonatal specimens tested, including placentas in some cases, were negative by RT-PCR for SARS-CoV-2. At this point in the global pandemic of COVID-19 infection there is no evidence that SARS-CoV-2 undergoes intrauterine or transplacental transmission from infected pregnant women to their fetuses. Analysis of additional cases is necessary to determine if this remains true.

1. **An update on SARS-CoV-2/COVID-19 with particular reference to its clinical pathology, pathogenesis, immunopathology and mitigation strategies**  
   Dhama K. Travel medicine and infectious disease 2020;:101755.

Coronavirus Disease 2019 (COVID-19), emerged in early December 2019 in China and became a pandemic situation worldwide by its rapid spread to more than 200 countries or territories. Bats are considered as the reservoir host, and the search of a probable intermediate host is still going on. The severe form of the infection is associated with death is mainly reported in older and immune-compromised patients with pre-existing disease history. Death in severe cases is attributed to respiratory failure associated with hyperinflammation. Cytokine storm syndrome associated with inflammation in response to SARS-CoV-2 infection is considered as the leading cause of mortality in COVID-19 patients. COVID-19 patients have thus higher levels of many proinflammatory cytokines and chemokines. The blood laboratory profile of the COVID-19 patients exhibits lymphopenia, leukopenia, thrombocytopenia, and RNAaemia, along with increased levels of aspartate aminotransferase. SARS-CoV-2 infection in pregnant women does not lead to fetus mortality, unlike other zoonotic coronaviruses such as SARS-CoV and MERS-CoV, and there is, to date, no evidence of intrauterine transmission to neonates. Rapid diagnostics have been developed, and significant efforts are being made to develop effective vaccines and therapeutics. In the absence of any virus-specific therapy, internationally, health care authorities are recommending the adoption of effective community mitigation measures to counter and contain this pandemic virus. This paper is an overview of this virus and the disease with a particular focus on SARS-CoV-2/COVID-19 clinical pathology, pathogenesis, and immunopathology, along with recent research developments. Copyright © 2020 Elsevier Ltd. All rights reserved.

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1. **Analysis of complement deposition and viral RNA in placentas of COVID-19 patients**  
   Mulvey Jj M. C. M. M. L. X. N. G. J. B. R. N. Annals of diagnostic pathology 2020;46:151529.

COVID-19, the disease caused by the novel Coronavirus, SARS-CoV-2, is increasingly being recognized as a systemic thrombotic and microvascular injury syndrome that may have its roots in complement activation. We had the opportunity to study the placental pathology of five full-term births to COVID-19 patients. All five exhibited histology indicative of fetal vascular malperfusion characterized by focal avascular villi and thrombi in larger fetal vessels. Vascular complement deposition in the placentas was not abnormal, and staining for viral RNA and viral spike protein was negative. While all cases resulted in healthy, term deliveries, these findings indicate the systemic nature of COVID-19 infection. The finding of vascular thrombosis without complement deposition may reflect the systemic nature of COVID-19's procoagulant effects unrelated to systemic complement activation.

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1. **Analysis of Maternal Coronavirus Infections and Neonates Born to Mothers with 2019-nCoV; a Systematic Review**  
   Muhidin S. Archives of academic emergency medicine 2020;8:e49.

Introduction: The emergence and fast spread of 2019 novel coronavirus (2019-nCoV) threatens the world as a new public health crisis. This study aimed to clarify the impact of novel coronavirus disease (COVID-19) on pregnant patients and maternal and neonatal outcomes., Methods: A comprehensive literature search was conducted in databases including PubMed, Scopus, Embase, ProQuest, and Science Direct. All studies including original data; case reports, case series, descriptive and observational studies, and randomized controlled trials were searched from December 2019 until 19 March 2020., Results: The search identified 1472 results and 939 abstracts were screened. 928 articles were excluded because studies did not include pregnant women. Full texts of eleven relevant studies were reviewed and finally nine studies were included in this study. The characteristics of 89 pregnant women and their neonates were studied. Results revealed that low-grade fever and cough were the principal symptoms in all patients. The main reported laboratory findings were lymphopenia, elevated C-Reactive Protein (CRP), Amino alanine transferase (ALT), and Aspartate amino transferase (AST). In all symptomatic cases, chest Computerized Tomography (CT) scans were abnormal. Fetal distress, premature rupture of membranes and preterm labor were the main prenatal complications. Two women needed intensive care unit admission and mechanical ventilation, one of whom developed multi-organ dysfunction and was on Extracorporeal Membrane Oxygenation (ECMO). No case of maternal death was reported up to the time the studies were published. 79 mothers delivered their babies by cesarean section and five women had a vaginal delivery. No fetal infection through intrauterine vertical transmission was reported., Conclusions: Available data showed that pregnant patients in late pregnancy had clinical manifestations similar to non-pregnant adults. It appears that the risk of fetal distress, preterm delivery and prelabor rupture of membranes (PROM) rises with the onset of COVID-19 in the third trimester of pregnancy. There is also no evidence of intrauterine and transplacental transmission of COVID-19 to the fetus in the third trimester of pregnancies.

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1. **Analysis of vaginal delivery outcomes among pregnant women in Wuhan, China during the COVID-19 pandemic**  
   Liao J. International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics 2020;150:53-57.

OBJECTIVE: To study vaginal delivery outcomes and neonatal prognosis and summarize the management of vaginal delivery during the COVID-19 pandemic., METHODS: A retrospective analysis of medical records and comparison of vaginal delivery outcomes between 10 pregnant women with clinical diagnosis of COVID-19 and 53 pregnant women without COVID-19 admitted to Zhongnan Hospital of Wuhan University between January 20 and March 2, 2020. Results of laboratory tests, imaging tests, and SARS-CoV-2 nucleic acid tests were also analyzed in neonates delivered by pregnant women with clinical diagnosis of COVID-19., RESULTS: 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., CONCLUSIONS: Under the premise of full evaluation of vaginal delivery conditions and strict protection measures, pregnant women with ordinary type COVID-19 can try vaginal delivery without exacerbation of COVID-19 and without increasing the risk of SARS-CoV-2 infection in neonates. Copyright © 2020 International Federation of Gynecology and Obstetrics.

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1. **Antibodies in infants born to mothers with COVID-19 pneumonia**  
   Zeng H. Jama 2020;323:1848-1849.

1. **Anxiety and depression levels among pregnant women with COVID-19**  
   Kotabagi P. Acta Obstetricia et Gynecologica Scandinavica 2020;99:953-954.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=19a078390d326f5e0cb65ec172e7ff84)

1. **Appropriate care for neonates born to mothers with COVID-19 disease**  
   Thi Tran H. Acta paediatrica (Oslo, Norway : 1992) 2020;:No page numbers.

The global COVID-19 pandemic has been associated with high rates of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) transmission, morbidity and mortality in the general population. Evidence-based guidance on caring for babies born to mothers with COVID-19 is needed. There is currently insufficient evidence to suggest vertical transmission between mothers and their newborn infants. However, transmission can happen after birth from mothers or other carers. Based on the currently available data, prolonged skin-to-skin contact and early and exclusive breastfeeding remain the best strategies to reduce the risks of morbidity and mortality for both the mother with COVID-19 and her baby.Copyright This article is protected by copyright. All rights reserved.

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1. **Are Covid-19-positive mothers dangerous for their term and well newborn babies? Is there an answer?**  
   Stanojevic M. Journal of perinatal medicine 2020;48:441-445.

Background The pandemic caused by the new coronavirus SARS-CoV-2 (Covid-19) is quite a challenging experience for the world. At the moment of birth, the fetus is prepared to face the challenge of labor and the exposure to the outside world, meaning that labor and birth represent the first extrauterine major exposure to a complex microbiota. The vagina, which is a canal for reproduction, is by evolution separated (but not far) from the anus and urethra. Passing through the birthing canal is a mechanism for intergenerational transmission of vaginal and gut microorganisms for the vertical transmission of microbiota not only from our mothers and grandmothers but also from earlier ancestors. Methods Many national and international instructions have been developed since the beginning of the Covid-19 outbreak in January 2020 in Wuhan in China. All of them pointed out hygiene measures, social distancing and avoidance of social contacts as the most important epidemiological preventive measures. Pregnancy and neonatal periods are considered as high risk for Covid-19 infection. Results The instructions defined the care for pregnant women in the delivery room, during a hospital stay and after discharge. The controversial procedures in the care of Covid-19-suspected or -positive asymptomatic women in labor were: mode of delivery, companion during birth and labor, skin-to-skin contact, breastfeeding, and visits during a hospital stay. Conclusion There is a hope that instruction on coping with the coronavirus (Covid-19) infection in pregnancy with all proposed interventions affecting mothers, babies and families, besides saving lives, are beneficial and efficient by exerting no harm.

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1. **Assessing the infection prevention and control measures for the prevention and management of COVID-19 in healthcare settings**  
   Anon. Covid-19 Ad hoc guidelines 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=e4c3216b896d315fd829e6776e607a72)

1. **Assessment of Obstetric, Fetal and Neonatal Risks and Vertical SARS-CoV-2 Transmission During COVID-19 Pandemic**  
   University Hospital T. ClinicalTrials.gov 2020;:No page numbers.

A new coronavirus (COVID-19) highlighted at the end of 2019 in China is spreading across all continents. Most often at the origin of a mild infectious syndrome, associating benign symptoms (such as fever, cough, and headache) to different degrees, COVID-19 can cause serious pulmonary pathologies and sometimes death. Data on the consequences during pregnancy are limited. The first Chinese data published seem to show that the symptoms in pregnant women are the same as those of the general population. There are no cases of intrauterine maternal-fetal transmission, but cases of newborns infected early suggest that there could be vertical intrauterine, perpartum or neonatal transmission. Prematurity and cases of respiratory distress in newborns of infected mothers have been described. Subsequently, an in-depth analysis of cases in pregnant women and pregnancy issues are necessary in order to improve knowledge on the subject.

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1. **Assisted Vaginal Birth**  
   Anon. Royal College of Obstetricians and Gynaecologists 2020;:No page numbers.

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1. **Association of COVID-19 with pregnancy outcomes in health-care workers and general women**  
   Khan S. Clinical microbiology and infection 2020;26:788-790.

1. **Asymptomatic COVID-19 infection in late pregnancy indicated no vertical transmission**  
   Lu D. Journal of medical virology 2020;:No page numbers.

This study is to investigate the clinical characteristics of late pregnancy with asymptomatic 2019 novel coronavirus disease (COVID-19) infection, evaluate the outcome of maternal and fetal prognosis, and identify the evidence of intrauterine vertical transmission. A 22-years-old pregnant woman with asymptomatic COVID-19 infection who was admitted to our hospital on 11 February 2020 was enrolled in this study. Clinical data including laboratory test results and chest computed tomography (CT) scanning were collected and reviewed. Diagnosis of late pregnancy with asymptomatic COVID-19 infection was made. Lumbar anesthesia for cesarean section was performed and a female baby was delivered uneventfully, with the Apgar score of 9 to 10 points. Three times of COVID-19 nucleic acid test for the baby was negative after delivery. The puerpera returned to normal after the operation and two times of throat swab COVID-19 nucleic acid test were all negative after antiviral therapy. We reported an asymptomatic COVID-19 pregnant woman with detailed clinical information and our result indicated that for late pregnant women with asymptomatic COVID-19 infection, there might be no intrauterine infection caused by vertical transmission. Copyright © 2020 Wiley Periodicals, Inc.

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1. **Breastfeeding and coronavirus disease-2019: Ad interim indications of the Italian Society of Neonatology endorsed by the Union of European Neonatal & Perinatal Societies**  
   Davanzo R. Maternal & child nutrition 2020;16:e13010.

The recent COVID-19 pandemic has spread to Italy with heavy consequences on public health and economics. Besides the possible consequences of COVID-19 infection on a pregnant woman and the fetus, a major concern is related to the potential effect on neonatal outcome, the appropriate management of the mother-newborn dyad, and finally the compatibility of maternal COVID-19 infection with breastfeeding. The Italian Society on Neonatology (SIN) after reviewing the limited scientific knowledge on the compatibility of breastfeeding in the COVID-19 mother and the available statements from Health Care Organizations has issued the following indications that have been endorsed by the Union of European Neonatal & Perinatal Societies (UENPS). If a mother previously identified as COVID-19 positive or under investigation for COVID-19 is asymptomatic or paucisymptomatic at delivery, rooming-in is feasible, and direct breastfeeding is advisable, under strict measures of infection control. On the contrary, when a mother with COVID-19 is too sick to care for the newborn, the neonate will be managed separately and fed fresh expressed breast milk, with no need to pasteurize it, as human milk is not believed to be a vehicle of COVID-19. We recognize that this guidance might be subject to change in the future when further knowledge will be acquired about the COVID-19 pandemic, the perinatal transmission of SARS-CoV-2, and clinical characteristics of cases of neonatal COVID-19. Copyright © 2020 The Authors. Maternal & Child Nutrition published by John Wiley & Sons Ltd.

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1. **Breastfeeding during the COVID-19 pandemic: Suggestions on behalf of woman study group of AMD**  
   Giuliani C. Diabetes research and clinical practice 2020;165:108239.

SARS-Cov2 infection has recently spread to Italy with important consequences on pregnancy management, mother and child health and mother-child contact. Breastfeeding improves the health of mother and child and reduces risk of neonatal infection with other pathogens that are likely to cause serious illness. To date no evidence confirmed COVID-19 vertical transmission from infected pregnant mother to their fetus. However it is well known that an infected mother can transmit the COVID-19 virus through respiratory droplets during breastfeeding or intimate contact. Thus, the mothers with known or suspected COVID-19 should adhere to standard and contact precautions during breastfeeding. Woman Study Group of AMD, after reviewing current knowledge about COVID-19 vertical transmission and the compatibility of breastfeeding in COVID-19 mother, the available recommendations from Health Care Organizations and main experts opinions, issued the following suggestions on breastfeeding during the COVID-19 pandemic, addressed both to mothers with and without diabetes. It should be considered that following suggestions may change in the future when more evidence is acquired regarding SARS-Cov2 infection. Copyright © 2020 Elsevier B.V. All rights reserved.

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1. **Breastfeeding Guidance Post Hospital Discharge for Mothers or Infants with Suspected or Confirmed SARS-Co V-2 Infection**  
   Anon. American Academy of Pediatrics 2020;:No page numbers.

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1. **Breastfeeding of infants born to mothers with COVID-19: A rapid review**  
   Yang N. Annals of Translational Medicine 2020;8:618.

Background: Existing recommendations on whether mothers with COVID-19 should continue breastfeeding are still conflicting. We aimed to conduct a rapid review of mother-to-child transmission of COVID-19 during breastfeeding. Method(s): We systematically searched Medline, Embase, Web of Science, Cochrane Library, China Biology Medicine disc, China National Knowledge Infrastructure, Wanfang, and preprint articles up to March 2020. We included studies relevant to transmission through milk and respiratory droplets during breastfeeding of mothers with COVID-19, SARS, MERS and influenza. Two reviewers independently screened studies for eligibility, extracted data, assessed risk of bias and used GRADE to assess certainty of evidence. Result(s): A total of 4,481 records were identified in our literature search. Six studies (five case reports and one case series) involving 58 mothers (16 mothers with COVID-19, 42 mothers with influenza) and their infants proved eligible. Five case reports showed that the viral nucleic acid tests for all thirteen collected samples of breast milk from mothers with COVID-19 were negative. A case series of 42 influenza infected postpartum mothers taking precautions (hand hygiene and wearing masks) before breastfeeding showed that no neonates were infected with influenza during one-month of follow-up. Conclusion(s): The current evidence indicates that SARS-CoV-2 viral nucleic acid has not been detected in breast milk. The benefits of breastfeeding may outweigh the risk of SARS-CoV-2 infection in infants. Mothers with COVID-19 should take appropriate precautions to reduce the risk of transmission via droplets and close contact during breastfeeding.Copyright © Annals of Translational Medicine. All rights reserved.

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1. **Breastfeeding when mothers have suspected or proven COVID-19**  
   Anon. Canadian Paediatric Society 2020;:No page numbers.

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1. **Can SARS-CoV-2 Infection Be Acquired in Utero?: More Definitive Evidence Is Needed**  
   Kimberlin D. W. JAMA - Journal of the American Medical Association 2020;323:1788-1789.

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1. **Can SARS-CoV-2-infected women breastfeed after viral clearance?**  
   Lang Gj Z. H. Journal of Zhejiang University. Science. B 2020;21:405-407.

The recently emerged novel coronavirus pneumonia, named the coronavirus disease 2019 (COVID-19), shares several clinical characteristics with severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS), and spread rapidly throughout China in December of 2019 (Huang et al., 2020). The pathogen 2019 novel coronavirus (2019-nCoV) is now named SARS coronavirus 2 (SARS-CoV-2) and is highly infectious. As of Apr. 9, 2020, over 80 000 confirmed cases had been reported, with an estimated mortality rate of 4.0% (Chinese Center for Disease Control and Prevention, 2020). Person-to-person transmission and familial clustering have been reported (Chan et al., 2020; Nishiura et al., 2020; Phan et al., 2020). However, there is no evidence of fetal intrauterine infection in pregnant women who have been infected with SARS-CoV-2 in their third trimester (Chen et al., 2020). It is unclear whether breastfeeding transmits the virus from previously infected and recovered mothers to their babies. Here we report the clinical course of a pregnant woman with COVID-19. In order to determine whether SARS-CoV-2 can be transmitted to newborns through breastfeeding, we measured viral RNA in the patient's breastmilk samples at different time points after delivery.

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1. **Care of newborns born to mothers with COVID-19 infection; a review of existing evidence**  
   Shahbazi Sighaldeh S. The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians 2020;:1-13.

Background: The novel Coronavirus disease 2019 (COVID-19) pandemic is already wreaking havoc on families and communities' welfare. It is critical to discuss newborn care of infected mothers with COVID-19 based on the latest international guidelines and national guidelines of countries with the highest incidence of COVID-19 cases. Objective: We discuss how to care for a newborn of a suspected or infected mother with COVID-19 using existing evidence. Method: As of 16 April 2020, we reviewed articles and guidelines related to COVID-19 in the reproductive health field, mother, and newborn health. Our review yielded in 10 categories (i) the risk of diagnostic procedures in suspected mothers on fetus/infant health, (ii) the risk of intrauterine or postpartum transmission to the fetus/infant, (iii) appropriate method and delivery time in women with confirmed COVID-19, (iv) umbilical cord clamping and skin to skin contact, (v) clinical manifestations of infected infants, (vi) confirmation of infection in a suspected neonate/infant, (vii) instructions for infant's care and how to feed her/him, (viii) bathing the baby, (ix) the criteria of discharging baby from the hospital, (x) the impact of isolation on the maternal mental health. Results: Our findings showed that the possibility of intrauterine or perinatal transmission of COVID-19 is still questionable and ambiguous. However, what has been agreed upon in the existing texts and guidelines is that the close contact of mother and infant after birth can transmit the virus to the baby through droplets or micro-droplets. Conclusions: Based on our findings, it is recommended to separate the baby from the mother with confirmed (or suspected) COVID-19 infection for at least 2 weeks. Since the motivation and stable situation of mothers allow breastfeeding during the isolation, infected mothers should be taught about breast expression skills, common breast problems, the symptoms of their baby's infection, and the principles of personal hygiene to protect the infant against COVID-19 infection.

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1. **Care of the pregnant woman with coronavirus disease 2019 in labor and delivery: anesthesia, emergency cesarean delivery, differential diagnosis in the acutely ill parturient, care of the newborn, and protection of the healthcare personnel**  
   Ashokka B. American Journal of Obstetrics and Gynecology 2020;:No page numbers.

Coronavirus disease 2019, caused by the severe acute respiratory syndrome coronavirus 2, has been declared a pandemic by the World Health Organization. As the pandemic evolves rapidly, there are data emerging to suggest that pregnant women diagnosed as having coronavirus disease 2019 can have severe morbidities (up to 9%). This is in contrast to earlier data that showed good maternal and neonatal outcomes. Clinical manifestations of coronavirus disease 2019 include features of acute respiratory illnesses. Typical radiologic findings consists of patchy infiltrates on chest radiograph and ground glass opacities on computed tomography scan of the chest. Patients who are pregnant may present with atypical features such as the absence of fever as well as leukocytosis. Confirmation of coronavirus disease 2019 is by reverse transcriptase-polymerized chain reaction from upper airway swabs. When the reverse transcriptase-polymerized chain reaction test result is negative in suspect cases, chest imaging should be considered. A pregnant woman with coronavirus disease 2019 is at the greatest risk when she is in labor, especially if she is acutely ill. We present an algorithm of care for the acutely ill parturient and guidelines for the protection of the healthcare team who is caring for the patient. Key decisions are made based on the presence of maternal and/or fetal compromise, adequacy of maternal oxygenation (SpO2 >93%) and stability of maternal blood pressure. Although vertical transmission is unlikely, there must be measures in place to prevent neonatal infections. Routine birth processes such as delayed cord clamping and skin-to-skin bonding between mother and newborn need to be revised. Considerations can be made to allow the use of screened donated breast milk from mothers who are free of coronavirus disease 2019. We present management strategies derived from best available evidence to provide guidance in caring for the high-risk and acutely ill parturient. These include protection of the healthcare workers caring for the coronavirus disease 2019 gravida, establishing a diagnosis in symptomatic cases, deciding between reverse transcriptase-polymerized chain reaction and chest imaging, and management of the unwell parturient.Copyright © 2020 Elsevier Inc.

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1. **Characterisation of COVID-19 Pandemic in Paediatric Age Group: A Systematic Review and Meta-Analysis**  
   Mustafa N. M. Journal of clinical virology : the official publication of the Pan American Society for Clinical Virology 2020;128:104395.

BACKGROUND: Coronavirus disease 2019 (COVID-19) is a pandemic first originated in Wuhan the capital of Hubei province, China in December 2019 and then spread globally. It is caused by SARS-CoV-2. Until 1st April 2020, the number of cases worldwide was recorded to be 823,626 with 40,598 deaths. Most of the reported cases were adults with few cases described in children and neonates., OBJECTIVES: We performed a systematic review and meta-analysis to analyse the disease characterisation in paediatric age group including the possibility of vertical transmission to the neonates., METHODS: Articles published up to 2nd April 2020 in PubMed and google Scholar were considered for this study., FINDINGS: The most frequently reported symptoms were cough 49% (95% CI: 42 - 55%) and fever 47% (95% CI: 41- 53%). Lymphopenia and increased Procalcitonin were recorded in (21%, 95% CI: 12 - 30%) and (28%, 95% CI: 18 - 37%) respectively. No sex difference for COVID-19 was found in paediatric age group (p=0.7). Case fatality rate was 0%. Four out of 58 neonates (6.8%) born to COVID-19 confirmed mothers tested positive for the disease., CONCLUSION: The disease trajectory in Paediatric patients has good prognosis compared to adults. Intensive care unit and death are rare. Vertical transmission and virus shedding in breast milk are yet to be established. Copyright © 2020 Elsevier B.V. All rights reserved.

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1. **Characteristics and outcomes of pregnant women admitted to hospital with confirmed SARS-CoV-2 infection in UK: national population based cohort study**  
   Knight M. bmj 2020;369:No page numbers.

1. **Characteristics of COVID-19 Infection Among PREGnant Women**  
   Inova Health S. ClinicalTrials.gov 2020;:No page numbers.

In December 2019, Coronavirus infection (COVID-19) was identified as causing serious respiratory infection in humans. Initially COVID-19 was propagated by infected symptomatic individuals; currently the disease is disseminated by asymptomatic COVID-19 positive subjects. The prevalence of asymptomatic COVID-19 individuals is unknown. Due its physiologic immune suppression, pregnancy is a vulnerable time for severe respiratory infections including COVID-19. Limited information is available regarding the impact of COVID-19 in pregnancy and the prevalence and demographic profile of asymptomatic pregnant women. Despite reports of 15-20% positive COVID-19 tests in women admitted to Labor and Delivery, professional obstetric medical societies still recommend not prioritizing testing of patients who are asymptomatic. In the USA, COVID-19 symptomatic patients come predominantly from lower income, Black and Latino communities. No data are available on the rate and demographic distribution of asymptomatic positive COVID-19 pregnant women. To minimize the risk of inadvertent exposure asymptomatic individuals, recently our institution started COVID-19 testing in all admitted pregnant women. The investigators expect to gain knowledge on the impact of COVID-19 in pregnant women especially if asymptomatic and compare to other respiratory infections.

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1. **Characteristics of Neonatal Covid-19 in Turkey**  
   Recep Tayyip Erdogan University T. ClinicalTrials.gov 2020;:No page numbers.

We aimed to investigate the clinical and epidemiological characteristics of neonates who will be born to Covid-19 positive mothers in Turkey. It is a multicentric prospective cohort study designed and destined only in Turkey. We are planning to admit more than 20 Neonatal Intensive Care Units into the survey; nevertheless, the total number may change according to the prevalence of Covid-19 in neonates. We will also inquire into vertical transmission by collecting cord blood, placental, and postnatal serum samples to test for Covid-19 PCR and Covid-19 Ig M and IgG values from the neonates.

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1. **Chest computed tomography images of early coronavirus disease (COVID-19)**  
   Chen R. Canadian journal of anaesthesia = Journal canadien d'anesthesie 2020;67:754-755.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=0fcae213aaca647bbe60aa6f0b1ef57a)

1. **Chinese expert consensus on the perinatal and neonatal management for the prevention and control of the 2019 novel coronavirus infection (First edition)**  
   Wang L. Annals of translational medicine 2020;8:47.

Since December 2019, there has been an outbreak of novel coronavirus (2019-nCoV) infection in China. Two cases of neonates with positive 2019-nCoV tests have been reported. Due to the immature immune system and the possibility of vertical transmission from mother to infant, neonates have become a high-risk group susceptible to 2019-nCoV, which emphasize a close cooperation from both perinatal and neonatal pediatrics. In neonatal intensive care unit (NICU), to prevent and control infection, there should be practical measures to ensure the optimal management of children potentially to be infected. According to the latest 2019-nCoV national management plan and the actual situation, the Chinese Neonatal 2019-nCoV expert working Group has put forward measures on the prevention and control of neonatal 2019-nCoV infection. Copyright 2020 Annals of Translational Medicine. All rights reserved.

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1. **Classification system and case definition for SARS-CoV-2 infection in pregnant women, fetuses, and neonates**  
   Shah P. S. Acta obstetricia et gynecologica Scandinavica 2020;99:565-568.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=40876dff2c7c3adf6e21896242e42c29)

1. **Clinical analysis of 10 neonates born to mothers with 2019-nCoV pneumonia**  
   Zhu H. Translational pediatrics 2020;9:51-60.

Background: The newly identified 2019-nCoV, which appears to have originated in Wuhan, the capital city of Hubei province in central China, is spreading rapidly nationwide. A number of cases of neonates born to mothers with 2019-nCoV pneumonia have been recorded. However, the clinical features of these cases have not been reported, and there is no sufficient evidence for the proper prevention and control of 2019-nCoV infections in neonates., Methods: The clinical features and outcomes of 10 neonates (including 2 twins) born to 9 mothers with confirmed 2019-nCoV infection in 5 hospitals from January 20 to February 5, 2020 were retrospectively analyzed., Results: Among these 9 pregnant women with confirmed 2019-nCoV infection, onset of clinical symptoms occurred before delivery in 4 cases, on the day of delivery in 2 cases, and after delivery in 3 cases. In most cases, fever and a cough were the first symptoms experienced, and 1 patient also had diarrhea. Of the newborns born to these mothers, 8 were male and 2 were female; 4 were full-term infants and 6 were born premature; 2 were small-for-gestational-age (SGA) infants and 1 was a large-for-gestational-age (LGA) infant; there were 8 singletons and 2 twins. Of the neonates, 6 had a Pediatric Critical Illness Score (PCIS) score of less than 90. Clinically, the first symptom in the neonates was shortness of breath (n=6), but other initial symptoms such as fever (n=2), thrombocytopenia accompanied by abnormal liver function (n=2), rapid heart rate (n=1), vomiting (n=1), and pneumothorax (n=1) were observed. Up to now, 5 neonates have been cured and discharged, 1 has died, and 4 neonates remain in hospital in a stable condition. Pharyngeal swab specimens were collected from 9 of the 10 neonates 1 to 9 days after birth for nucleic acid amplification tests for 2019-nCoV, all of which showed negative results., Conclusions: Perinatal 2019-nCoV infection may have adverse effects on newborns, causing problems such as fetal distress, premature labor, respiratory distress, thrombocytopenia accompanied by abnormal liver function, and even death. However, vertical transmission of 2019-nCoV is yet to be confirmed. Copyright 2020 Translational Pediatrics. All rights reserved.

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1. **Clinical and Immunologic Impact of Perinatal SARS-CoV-2 (COVID-19) Infection**  
   Fundacion I. ClinicalTrials.gov 2020;:No page numbers.

This is a multi-center prospective study that aims to investigate the clinical and immunologic impact of SARS-CoV-2 infection in pregnant women and neonates. The goal is to recruit 200 SARS-CoV-2 infected pregnant women starting at 24 weeks of gestation in a neonatal network of 45.000 birth a year. Clinical data will be collected from women and neonates. Upper airways samples will be obtained from both for bio-markers investigation. Finally, maternal and umbilical cord serum and human milk will be obtained for antibody assessment.

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1. **Clinical characteristics and diagnostic challenges of pediatric COVID-19: A systematic review and meta-analysis**  
   Chang T. H. Journal of the Formosan Medical Association 2020;119:982-989.

Background/Purpose: Current studies on pediatric coronavirus disease 2019 (COVID-19) are rare. The clinical characteristics and spectrum are still unknown. Facing this unknown and emerging pathogen, we aimed to collect current evidence about COVID-19 in children. Method(s): We performed a systematic review in PubMed and Embase to find relevant case series. Because some reports were published in Chinese journals, the journals and publications of the Chinese Medical Association related to COVID-19 were completely reviewed. A random effects model was used to pool clinical data in the meta-analysis. Result(s): 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 the most relevant virus, SARS-CoV, SARS-CoV-2 causes less severe disease. Conclusion(s): COVID-19 has distinct features in children. The disease severity is mild. Current diagnosis is based mainly on typical ground glass opacities on chest CT, epidemiological suspicion and contact tracing.Copyright © 2020

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1. **Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records**  
   Chen H. The Lancet 2020;395:809-815.

1. **Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records: Chen H, Gun J, Wang C, et al. Lancet 2020; 395: 809-15**  
   Eastin C. Journal of Emergency Medicine 2020;58:710-711.

Multiple reports have been published recently on characteristics of patients with COVID-19 in the general population, but there is little information on pregnancy-related presenting symptoms and outcomes. The goal of this study was to report clinical data as well as incidence of vertical transmission in pregnant patients with COVID-19. This retrospective chart review was performed on pregnant women admitted to Zhongnan Hospital of Wuhan University in China with confirmed COVID-19 between January 20 through January 31, 2020. Clinical, laboratory, and radiologic records were reviewed by two investigators. Additionally, analyses from amniotic fluid, cord blood samples, and neonatal throat samples from the time of delivery were included. Vertical transmission was defined as positive testing for COVID-19 in these samples. Descriptive statistics were used. There were nine patients included in the analysis. All were in the third trimester on admission, the earliest presenting at 36 weeks, 2 days and all had a known source of exposure to COVID-19. None of the patients had baseline comorbidities, but one patient had gestational hypertension and another developed pre-eclampsia. The most common symptoms of COVID-19 were fever on admission (78%), postpartum fever (67%), cough (44%), myalgia (33%), and sore throat (22%). Most had low or normal leukocyte count (78%) and 5 (56%) had lymphopenia. C-reactive protein was greater than 10mg/L in 75% of patients. One was found to be co-infected with influenza, and all were diagnosed with COVID-19 pneumonia and required oxygen therapy and antibiotics. Many (67%) also received antivirals. Regarding delivery, all nine were live births delivered via cesarean section with 1-min Apgar scores of 8-9 and 5-min Apgar scores of 9-10. Four of the 9 were delivered prematurely at 36 weeks (44%) for a variety of reasons including premature rupture of membranes, pre-eclampsia, or pneumonia. None of the fluid samples at birth were positive for COVID-19. Additionally, all of the mothers and babies were discharged from the hospital. Limitations discussed include the retrospective nature of data abstraction and small sample size. Additionally all patients enrolled were in the third trimester. The authors concluded that pregnant patients with COVID-19 present with similar symptoms as nonpregnant patients. Also, based on this limited sample, the mothers had a low risk of complications and all of the infants tested negative for COVID-19 after birth, suggesting that vertical transmission is unlikely. Comment: There are still many uncertainties about the disease course of COVID-19 in pregnant patients. This review is reassuring, however this is a very small sample size so caution should be used in applying these results to our day to day patients, especially those at earlier gestational ages. More studies should be conducted on pregnant patients with COVID-19 in all trimesters to have a more accurate picture of how this virus affects pregnancy-related outcomes.Copyright © 2020

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1. **Clinical characteristics and risk assessment of newborns born to mothers with COVID-19**  
   Yang P. Journal of clinical virology : the official publication of the Pan American Society for Clinical Virology 2020;127:104356.

BACKGROUND: Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) is causing an outbreak of pneumonia in Wuhan, Hubei Province, China, and other international areas., OBJECTIVE: Here, we report the clinical characteristics of the newborns delivered by SARS-CoV-2 infected pregnant women., METHODS: We 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., RESULTS: 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 (NRDS). Samples of pharyngeal swab in 6 cases, amniotic fluid and umbilical cord blood in 4 cases were tested by qRT-PCR, and there was no positive result of SARS-CoV-2 nucleic acid in all cases., CONCLUSIONS: The current data show that the infection of SARS-CoV-2 in late pregnant women does not cause adverse outcomes in their newborns, however, it is necessary to separate newborns from mothers immediately to avoid the potential threats. Copyright © 2020 Elsevier B.V. All rights reserved.

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1. **Clinical characteristics of 19 neonates born to mothers with COVID-19**  
   Liu W. Frontiers of medicine 2020;14:193-198.

The aim of this study was to investigate the clinical characteristics of neonates born to SARS-CoV-2 infected mothers and increase the current knowledge on the perinatal consequences of COVID-19. Nineteen neonates were admitted to Tongji Hospital from January 31 to February 29, 2020. Their mothers were clinically diagnosed or laboratory-confirmed with COVID-19. We prospectively collected and analyzed data of mothers and infants. There are 19 neonates included in the research. Among them, 10 mothers were confirmed COVID-19 by positive SARS-CoV-2 RT-PCR in throat swab, and 9 mothers were clinically diagnosed with COVID-19. Delivery occurred in an isolation room and neonates were immediately separated from the mothers and isolated for at least 14 days. No fetal distress was found. Gestational age of the neonates was 38.6 +/- 1.5 weeks, and average birth weight was 3293 +/- 425 g. SARS-CoV-2 RT-PCR in throat swab, urine, and feces of all neonates were negative. SARS-CoV-2 RT-PCR in breast milk and amniotic fluid was negative too. 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 in our study. The delivery should occur in isolation and neonates should be separated from the infected mothers and care givers.

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1. **Clinical Characteristics of Coronavirus Disease 2019 (COVID-19) in Pregnancy: the Italian Registry on Coronavirus in Pregnancy**  
   Federico I. I. U. ClinicalTrials.gov 2020;:No page numbers.

The Novel Coronavirus (2019-nCoV), also known as Wuhan coronavirus, causes the 2019-nCoV acute respiratory disease. The number of patients infected by 2019-nCoV in Italy closely followed an exponential trend, and Italy reported the highest number of infected patients and deaths in the world excluding China.

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1. **Clinical characteristics of novel coronavirus disease 2019 (COVID-19) in newborns, infants and children**  
   Hong H. Pediatrics & Neonatology 2020;61:131-132.

1. **Clinical characteristics of pregnant female and juvenile patients with MERS: A systematic review**  
   He Y. Chinese Journal of Evidence-Based Medicine 2020;20:576-584.

Objectives To systematically review the clinical characteristics of pregnant females and juveniles (<18 years) with Middle East Respiratory Syndrome (MERS), so as to provide evidence for epidemic prevention and treatment of COVID-19. Methods PubMed, EMbase, Web of Science, The Cochrane Library, CNKI, VIP and WanFang Data databases were electronically searched to collect studies on clinical characteristics of pregnant females and juveniles with MERS from inception to February 15th, 2020. Two reviewers independently screened literature, extracted data and assessed risk of bias of included studies. Descriptive analysis was then performed. Results A total of 12 studies involving 12 pregnant females, and 21 juveniles with MERS were included. The results of studies showed that the male to female ratio of juveniles patients was 1 to 1.63 and the age ranged from 9 months to 16 years. The primary transmission route of juveniles cases was family contact infection, accounting for 57.1% (12/21). Asymptomatic juveniles accounted for 57.1% (12/21), and the most common symptoms were fever, cough and shortness of breath. Some patients exhibited gastrointestinal symptoms such as vomiting and diarrhea. The positive rate of MERS-CoV RCT test was 100.0% (21/21). As for chest radiograph, 73.7% (14/19) cases showed no obvious lesions, and juveniles with lesions were mainly bilateral. 3 patients with underlying diseases developed severe cases, the mortality was 9.5% (2/21). The age range of pregnant women was 27 to 39, with the gestational age from 6 to 38 weeks. The primary transmission route for pregnant women was nosocomial infection, accounting for 57.1% (4/7). Fever, cough, shortness of breath were common manifestations, while abdominal pain occurred in two female patients. The positive rate of MERS-CoV RCT test was 100.0% (11/11). The chest radiograph findings were mainly bilateral lesions, accounting for 55.6% (5/9). 80.0% of whole pregnant females were severe cases (8/10), 4 of them died, with the 50.0% (4/8) mortality in severe pregnant cases. Among the infective pregnant women, 2 were stillborn and 10 were delivered, of which 1 died due to premature delivery. The remaining 9 surviving newborns were not infected with MERS-CoV and there was no evidence of mother-to-child transmission. Conclusions The clinical symptoms of MERS in juveniles are similar to those in adults, however, considerably milder. Severe case rate is higher in patients with underlying diseases. However, maternal infections could be much severe with higher mortality. It is particularly important to strengthen the management of pregnant females, especially prevent hospital infection. There is still no evidence of MERS-CoV mother-to-child transmission.Copyright © 2020 West China University of Medical Science. All rights reserved.

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1. **Clinical course of coronavirus disease-2019 in pregnancy**  
   Pereira A. Acta obstetricia et gynecologica Scandinavica 2020;99:839-847.

INTRODUCTION: The aim of this study is to report our clinical experience in the management of pregnant women infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) during the first 30 days of the coronavirus disease (COVID-19) pandemic., MATERIAL AND METHODS: We reviewed clinical data from the first 60 pregnant women with COVID-19 whose care was managed at Puerta de Hierro University Hospital, Madrid, Spain from 14 March to 14 April 2020. Demographic data, clinical findings, laboratory test results, imaging findings, treatment received, and outcomes were collected. An analysis of variance (Kruskal-Wallis test) was performed to compare the medians of laboratory parameters. Fisher's exact test was used to evaluate categorical variables. A correspondence analysis was used to explore associations between variables., RESULTS: A total of 60 pregnant women were diagnosed with COVID-19. The most common symptoms were fever and cough (75.5% each) followed by dyspnea (37.8%). Forty-one women (68.6%) required hospital admission (18 because of disease worsening and 23 for delivery) of whom 21 women (35%) underwent pharmacological treatment, including hydroxychloroquine, antivirals, antibiotics, and tocilizumab. No renal or cardiac failures or maternal deaths were reported. Lymphopenia (50%), thrombocytopenia (25%), and elevated C-reactive protein (CRP) (59%) were observed in the early stages of the disease. Median CRP, D-dimer, and the neutrophil/lymphocyte ratio were elevated. High CRP and D-dimer levels were the parameters most frequently associated with severe pneumonia. The neutrophil/lymphocyte ratio was found to be the most sensitive marker for disease improvement (relative risk 6.65; 95% CI 4.1-5.9). During the study period, 18 of the women (78%) delivered vaginally. All newborns tested negative for SARS-CoV-2 and none of them were infected during breastfeeding. No SARS-CoV-2 was detected in placental tissue., CONCLUSIONS: Most of the pregnant women with COVID-19 had a favorable clinical course. However, one-third of them developed pneumonia, of whom 5% presented a critical clinical status. CRP and D-dimer levels positively correlated with severe pneumonia and the neutrophil/lymphocyte ratio decreased as the patients improved clinically. Seventy-eight percent of the women had a vaginal delivery. No vertical or horizontal transmissions were diagnosed in the neonates during labor or breastfeeding. Copyright © 2020 Nordic Federation of Societies of Obstetrics and Gynecology.

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1. **Clinical course of severe and critical COVID-19 in hospitalized pregnancies: a US cohort study**  
   Pierce-Williams Ram B. J. F. L. K. R. B. P. S. A. K. P. C. A. R. A. S. D. C. A. S. J. American journal of obstetrics & gynecology MFM 2020;:100134.

BACKGROUND: The COVID-19 pandemic has had an impact on healthcare systems around the world with 3.0 million infected and 208,000 resultant mortalities as of this writing. Information regarding infection in pregnancy is still limited. OBJECTIVES: To describe the clinical course of severe and critical infection in hospitalized pregnant women with positive laboratory testing for SARS-CoV2. STUDY DESIGN: This is a cohort study of pregnant women with severe or critical COVID-19 infection hospitalized at 12 US institutions between March 5, 2020 and April 20, 2020. Severe infection was defined according to published criteria by patient reported dyspnea, respiratory rate > 30 per minute, blood oxygen saturation = 93% on room air, partial pressure of arterial oxygen to fraction of inspired oxygen <300 and/or lung infiltrates >50% within 24 to 48 hours on chest imaging. Critical disease was defined by respiratory failure, septic shock, and/or multiple organ dysfunction or failure. Women were excluded if they had presumed COVID-19 infection but laboratory testing was negative. The primary outcome was median duration from hospital admission to discharge. Secondary outcomes included need for supplemental oxygen, intubation, cardiomyopathy, cardiac arrest, death, and timing of delivery. The clinical courses are described by the median disease day on which these outcomes occurred after the onset of symptoms. Treatment and neonatal outcomes are also reported. RESULTS: Of 64 pregnant women hospitalized with COVID-19, 44 (69%) had severe and 20 (31%) critical disease. The following pre-existing comorbidities were observed: 25% had a pulmonary condition, 17% had cardiac disease and the mean BMI was 34 kg/m(2). Gestational age at symptom onset was at a mean 29 ±6 weeks and at hospital admission a mean of 30 ±6 weeks, on a median day of disease 7 since first symptoms. Eighty-one percent of women were treated with hydroxychloroquine; 9% of women with severe disease and 65% of women with critical disease received remdesivir. All women with critical disease received either prophylactic or therapeutic anticoagulation during their admission. The median duration of hospital stay was 6 days (6 days for severe, 10.5 days for critical, p=0.01). For those who required it, intubation usually occurred around day 9, and peak respiratory support for women with severe disease occurred on day 8. In women with critical disease, prone positioning was performed in 20% of cases, the rate of ARDS was 70%, and re-intubation was necessary in 20%. There was one case of maternal cardiac arrest, but no cases of cardiomyopathy and no maternal deaths. Thirty-two (50%) women in this cohort delivered during their COVID-19 hospitalization (34% of severe and 85% of critical women). Eighty-eight percent (15/17) of pregnant women with critical COVID-19 who delivered during their disease course were delivered preterm, 94% of them via cesarean; in all, 75% (15/20) of critically ill women delivered preterm. There were no stillbirths or neonatal deaths, or cases of vertical transmission. CONCLUSION: In hospitalized pregnant women with severe or critical COVID-19 infection, admission typically occurred about 7 days after symptom onset, and the duration of hospitalization was 6 days (6 severe versus 12 critical). Critically ill women had a high rate of ARDS, and there was one case of cardiac arrest, but there were no cases of cardiomyopathy, or maternal mortality. Hospitalization for severe or critical COVID-19 infection resulted in delivery during the course of infection in 50% of this cohort, usually in the third trimester. There were no perinatal deaths in this cohort.

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1. **Clinical features and obstetric and neonatal outcomes of pregnant patients with COVID-19 in Wuhan, China: a retrospective, single-centre, descriptive study**  
   Yu N. The Lancet Infectious Diseases 2020;:No page numbers.

1. **Clinical features and sexual transmission potential of SARS-CoV-2 infected female patients: a descriptive study in Wuhan, China**  
   Cui P. MedRxiv 2020;:No page numbers.

1. **Clinical management of severe acute respiratory infection when COVID-19 is suspected**  
   Anon. WHO Coronavirus disease (COVID-19) Pandemic 2020;:No page numbers.

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1. **Clinical role of lung ultrasound for the diagnosis and monitoring of COVID-19 pneumonia in pregnant women**  
   Buonsenso D. R. F. T. E. B. D. G. S. S. S. A. I. R. S. G. L. A. T. A. C. M. F. Ultrasound in obstetrics & gynecology 2020;:No page numbers.

Lung ultrasound has recently been suggested by the Chinese Critical Care Ultrasound Study Group and Italian Academy of Thoracic Ultrasound as an accurate tool to detect lung involvement during COVID-19. Although chest Computer Tomography (CT) represents the gold standard to assess lung involvement, with a specificity even superior to the nasal/pharyngeal swab for diagnosis, lung ultrasound examination can be a valid alternative to CT scan, with some advantages, particularly desirable for pregnant women. Indeed, ultrasound can be performed directly at bed side by a single operator, reducing the risk of spreading the outbreak among health professionals, as well as it is a radiation free exam making to be easier monitoring those patients who require serial exams. In the present study, we reported four cases of pregnant women affectd by COVID-19 infection who have been monitoring with lung ultrasound examination. All patients showed ultrasound 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 in two cases. LUS was more sensitive than chest X-ray in detecting COVID-19. Three patients had resolution of lung pathology at ultrasound after 96 h of admission. Two pregnancies are ongoing, whereas two patients had cesarean delivery with no fetal complications. PCR testing of both cord blood and newborn swabs were negative in both cases. This article is protected by copyright. All rights reserved.

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1. **Clinical update on COVID-19 in pregnancy: A review article**  
   Ryan G. A. The journal of obstetrics and gynaecology research 2020;:No page numbers.

The data pertaining to the COVID-19 pandemic has been rapidly evolving since the first confirmed case in December 2019. This review article presents a comprehensive analysis of the current data in relation to COVID-19 and its effect on pregnant women, including symptoms, disease severity and the risk of vertical transmission. We also review the recommended management of pregnant women with suspected or confirmed COVID-19 and the various pharmacological agents that are being investigated and may have a role in the treatment of this disease. At present, it does not appear that pregnant women are at increased risk of severe infection than the general population, although there are vulnerable groups within both the pregnant and nonpregnant populations, and clinicians should be cognizant of these high-risk groups and manage them accordingly. Approximately 85% of women will experience mild disease, 10% more severe disease and 5% critical disease. The most common reported symptoms are fever, cough, shortness of breath and diarrhea. Neither vaginal delivery nor cesarean section confers additional risks, and there is minimal risk of vertical transmission to the neonate from either mode of delivery. We acknowledge that the true effect of the virus on both maternal and fetal morbidity and mortality will only be evident over time. We also discuss the impact of social isolation can have on the mental health and well-being of both patients and colleagues, and as clinicians, we must be mindful of this and offer support as necessary. Copyright © 2020 Japan Society of Obstetrics and Gynecology.

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1. **Colchicina Test in the Sars-Cov2 Coronavirus (Colcorona-Covid-19)**  
   Montreal Heart I. Ictrp 2020;:No page numbers.

Main objective of the trial The main objective of this study is to determine if short-term treatment with colchicine reduces the mortality rate and lung complications related to COVID-19. Principal inclusion criteria • Man or woman over 40 years of age with the capacity and willingness to provide their informed consent. • Patient diagnosed with COVID-19 infection in the last 24 hours. • Outpatient (not currently hospitalized or pending decision on immediate hospitalization). • Patient presenting with at least one of the following high-risk criteria: Over 70 years of age, diabetes mellitus, uncontrolled hypertension (systolic blood pressure ≥ 150 mm Hg), known respiratory disease (including asthma and chronic obstructive pulmonary disease) known heart failure Known coronary heart disease, fever ≥ 38.4 ° C in the last 48 hours, dyspnea at presentation, bicytopenia, pancytopenia, or combination of high neutrophil count and low lymphocyte count. • Woman who is not fertile, defined as postmenopausal for at least 1 year or surgically sterile, or fertile woman who uses at least one contraceptive method, and preferably two complementary contraceptive methods including a barrier method (for example, male or female condom, spermicide, sponge, foam, gel, diaphragm, intrauterine device [IUD]) throughout the study and up to 30 days after the end of the study. • Patient with capacity and willingness to meet the requirements of this study protocol.

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1. **Combating sars-cov-2 through lipoxins, proteasome, caveolin and nuclear factor-kappab pathways in non-pregnant and pregnant populations**  
   Celik O. Cellular and molecular biology (Noisy-le-Grand, France) 2020;66:221-229.

It can be misleading to think that the new severe acute respiratory syndrome coronavirus (SARS-CoV2) which has a very strong mutation and adaptation capabilities, uses only the angiotensin-converting enzyme II (ACE2) pathway to reach target cells. Despite all the precautions taken, the pandemic attack continues and the rapid increase in the number of deaths suggest that this virus has entered the cell through different pathways and caused damage through different mechanisms. The main reason why the ACE2 pathway comes to the fore in all scientific studies is that this receptor is located at the entry point of basic mechanisms that provide alveolo-capillary homeostasis. SARS-CoV-2 has to use nuclear factor-kappaB (NF-kB), caveloae, clathrin, lipoxin, serine protease and proteasome pathways in addition to ACE2 to enter the target cell and initiate damage. For this reason, while new drug development studies are continuing, in order to be beneficial to patients in their acute period, it is imperative that we are able to come up with drugs that activate or inhibit these pathways and are currently in clinical use. It is also critical that we adopt these new pathways to the treatment of pregnant women affected by SARS-CoV-2, based on the scientific data we use to treat the general population.

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1. **Comment of the potential risks of sexual and vertical transmission of Covid-19 infection**  
   Scorzolini L. Clinical infectious diseases : an official publication of the Infectious Diseases Society of America 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=be297f0e397d9ed2b54005b744e4c59c)

1. **Complications and outcomes of SARS-CoV-2 in pregnancy: where and what is the evidence?**  
   Teles Abrao Trad A. Hypertension in pregnancy 2020;39:361-369.

OBJECTIVES: To add to the growing evidence on SARS-CoV-2 infection during pregnancy, so as to better inform clinical decision making and optimize patient outcomes., METHODS: A systematic search of relevant databases was perfomed on 25 March 2020 and a repeat search, on 10 April 2020. Reports of pregnant patients with SARS-CoV-2 infection at any time during their pregnancy were reviewed and summarized ., RESULTS: We summarized the outcomes of a total of 155 pregnant women and 118 neonates. The evidence suggests a similar rate of severe COVID-19 cases in pregnant women and the general population. The frequency of cesarean deliveries is high, against guidelines recommendations., CONCLUSION: Limited data on COVID-19 during preganacy, associated with a wide variation in the methodology make accurate data interpretation difficult.

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1. **Consensus Statement on organization of routine and specialist obstetric ultrasound services in the context of COVID-19**  
   Anon. British Medical Ultrasound Society 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=4c69b83d850335ca867543299648fae2)

1. **Considerations and recommendations for obstetric anesthesia care during COVID-19 pandemic - Saudi anesthesia society guidelines**  
   Alyamani O. Saudi Journal of Anaesthesia 2020;14:359-364.

Introduction: Severe acute respiratory syndrome coronavirus 2 (SARS CoV-2) emerged in Wuhan, China late 2019 and became a pandemic causing coronavirus disease 2019 (COVID-19). Despite its lower mortality rate compared to the other coronaviruses, it has a higher human-to-human transmission rate. Anesthesiologists may benefit from a review of the current evidence related to the obstetric patient with COVID-19. Method(s): We reviewed the literature for relevant articles as well as experts' opinions from related medical societies' websites. Conclusion(s): There are several anesthetic considerations in the care of pregnant women with COVID-19 due to their unique physiological changes. We provide considerations and recommendations for departmental and institutional leadership as well as the obstetric anesthesia providers. These recommendations may apply and can be edited, for future droplet or airborne based pandemics. The rapidly evolving literature makes it important to get updates directly from the relevant medical societies' websites.Copyright © 2020 Wolters Kluwer Medknow Publications. All rights reserved.

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1. **Considerations for Obstetric Care during the COVID-19 Pandemic**  
   Dotters-Katz S. K. American journal of perinatology 2020;37:773-779.

The novel coronavirus disease 2019 (COVID-19) is a growing pandemic that is impacting daily life across the globe. Though disease is often mild, in high-risk populations, severe disease often leads to intubation, intensive care admission (ICU) admission, and in many cases death. The implications for pregnancy remain largely unknown. Early data suggest that COVID-19 may not pose increased risk in the pregnant population. Vertical transmission has not been confirmed. Because no treatment, no vaccine and no herd immunity exist, social distancing is the best mechanism available to protect patients and health care workers from infection. This review will discuss what is known about the virus as it relates to pregnancy and then consider management considerations based on these data. KEY POINTS: . COVID-19 severity in pregnancy is unclear.. . Social distancing is the best protective mechanism.. . No clear evidence of vertical transmission exists.. . Mother/baby separation avoids transmission.. Copyright Thieme Medical Publishers 333 Seventh Avenue, New York, NY 10001, USA.

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1. **Contingency management strategies of the Nursing Department in centralized rescue of patients with coronavirus disease 2019**  
   Wang H. Int J Nurs Sci 2020;:No page numbers.

Objectives: This article aims to summarize a series of contingency management strategies of the Nursing Department in the centralized treatment of patients with coronavirus disease 2019(COVID-19). Methods: The strategies of the Nursing Department included early warning for prevention and control, taking functions of vertically commanding and horizontally coordinating, and reasonably allocating nursing workforce, to facilitate centralized treatment work in the in-hospital fever clinic, isolation wards and ICU, and referral and admission of critical patients. Five special groups were established in charge of training and examination, management and supervision, psychological support, logistical support, and reporting and publicity, respectively. Results: It was achieved that no deaths from critical patients and no medical staff, no other patients were infected. Conclusion: Through the implementation of these strategies, safe and efficient centralized treatment was ensured timely, orderly and sustainably.

1. **Contraception during Coronavirus-Covid 19 pandemia. Recommendations of the Board of the Italian Society of Contraception**  
   Fruzzetti F. Eur J Contracept Reprod Health Care 2020;:No page numbers.

Purpose: The Italian Society of Contraception identified as one of its priorities the need to give recommendations on management of contraception during Coronavirus-Covid 19 pandemiaMaterials and methods: A concise communication was produced which summarises in an easy-to-read format suitable for clinicians the management of the different contraceptives mostly used. Information how to manage contraception in different conditions is presented.Results: Women may, in general, continue to use either intrauterine and or hormonal contraceptives. The use of condom should be added to any hormonal contraceptive, when the contraceptive efficacy is reduced or when women stop the contraceptive method.Conclusion: At the present time, during the Coronavirus-Covid 19 pandemia, no data contraindicate the use of intrauterine or hormonal contraceptives. Conversely the use of an appropriate contraception is advocate to prevent unintended pregnancies.

1. **Coronavirus (COVID-19) and Pregnancy: What Maternal-Fetal Medicine Subspecialists Need to Know**  
   Anon. Society for Maternal-Fetal Medicine 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=e8a64326c0ce6fca22f10aaa560beda5)

1. **Coronavirus (COVID-19) infection and abortion care**  
   Anon. Royal College of Obstetricians and Gynaecologists 2020;:No page numbers.

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1. **Coronavirus (COVID-19) infection and pregnancy**  
   Anon. Royal College of Obstetricians and Gynaecologists 2020;:No page numbers.

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1. **Coronavirus disease (COVID‐19) and neonate: What neonatologist need to know**  
   Lu Q. Journal of medical virology 2020;92:564-567.

1. **Coronavirus disease 2019 (COVID-19) and pregnancy: a systematic review**  
   Yang Z. The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians 2020;:1-4.

Objective: To summarize currently available evidence on maternal, fetal, and neonatal outcomes of pregnant women infected with Coronavirus Disease 2019 (COVID-19). Material and methods: PubMed, Google Scholar, CNKI, Wanfang Data, VIP, and CBMdisc were searched for studies reporting maternal, fetal, and neonatal outcomes of women infected with COVID-19 published from 1 January 2020 to 26 March 2020. The protocol was registered with the Open Science Framework (DOI: 10.17605/OSF.IO/34ZAV). Results: In total, 18 studies comprising 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. There are reports of neonatal infection, but no direct evidence of intrauterine vertical transmission has been found. Conclusions: The clinical characteristics of pregnant women with COVID-19 are similar to those of non-pregnant adults. Fetal and neonatal outcomes appear good in most cases, but available data only include pregnant women infected in their third trimesters. Further studies are needed to ascertain long-term outcomes and potential intrauterine vertical transmission.

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1. **Coronavirus disease 2019 (COVID-19) and pregnancy: Overview and report of the first German case with COVID-19 and gestational diabetes**  
   Kleinwechter H. Diabetologe 2020;16:242-246.

Since the beginning of the coronavirus pandemic with SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) in January 2020, more than 100 cases of pregnant Chinese women have been published, including individuals with gestational diabetes (GDM). The descriptive overview reports on the clinical presentation of COVID-19 as well as on obstetric and neonatal outcome data. The main symptoms of the overall milder course of infection are fever, cough and dyspnea. So far, there is no evidence of intrauterine transmission of the virus and no evidence of breast milk transfer. Postnatal infections of infants of infected mothers are documented, but the course is usually mild. The available data are informative for preparing health professionals for the expected infections in pregnant women with the comorbidity diabetes mellitus.Copyright © 2020, Springer Medizin Verlag GmbH, ein Teil von Springer Nature.

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1. **Coronavirus Disease 2019 (COVID-19) and Pregnancy: Responding to a Rapidly Evolving Situation**  
   Rasmussen S. A. Obstetrics and gynecology 2020;135:999-1002.

As the world confronts coronavirus disease 2019 (COVID-19), an illness caused by yet another emerging pathogen (severe acute respiratory syndrome coronavirus 2 [SARS-CoV-2]), obstetric care providers are asking what this means for pregnant women. The global spread has been swift, and many key questions remain. The case-fatality rate for persons cared for in the United States and whether asymptomatic persons transmit the virus are examples of questions that need to be answered to inform public health control measures. There are also unanswered questions specific to pregnant women, such as whether pregnant women are more severely affected and whether intrauterine transmission occurs. 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. As the situation with COVID-19 rapidly unfolds, it is critical that obstetricians keep up to date.

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1. **Coronavirus Disease 2019 (COVID-19) and pregnancy: what obstetricians need to know**  
   Rasmussen S. A. American journal of obstetrics and gynecology 2020;222:415-426.

Coronavirus disease 2019 is an emerging disease with a rapid increase in cases and deaths since its first identification in Wuhan, China, in December 2019. Limited data are available about coronavirus disease 2019 during pregnancy; however, information on illnesses associated with other highly pathogenic coronaviruses (ie, severe acute respiratory syndrome and the Middle East respiratory syndrome) might provide insights into coronavirus disease 2019's effects during pregnancy. Coronaviruses cause illness ranging in severity from the common cold to severe respiratory illness and death. Currently the primary epidemiologic risk factors for coronavirus disease 2019 include travel from mainland China (especially Hubei Province) or close contact with infected individuals within 14 days of symptom onset. Data suggest an incubation period of ~5 days (range, 2-14 days). Average age of hospitalized patients has been 49-56 years, with a third to half with an underlying illness. Children have been rarely reported. Men were more frequent among hospitalized cases (54-73%). Frequent manifestations include fever, cough, myalgia, headache, and diarrhea. Abnormal testing includes abnormalities on chest radiographic imaging, lymphopenia, leukopenia, and thrombocytopenia. Initial reports suggest that acute respiratory distress syndrome develops in 17-29% of hospitalized patients. Overall case fatality rate appears to be ~1%; however, early data may overestimate this rate. In 2 reports describing 18 pregnancies with coronavirus disease 2019, all were infected in the third trimester, and clinical findings were similar to those in nonpregnant adults. Fetal distress and preterm delivery were seen in some cases. All but 2 pregnancies were cesarean deliveries and no evidence of in utero transmission was seen. Data on severe acute respiratory syndrome and Middle East respiratory syndrome in pregnancy are sparse. For severe acute respiratory syndrome, the largest series of 12 pregnancies had a case-fatality rate of 25%. Complications included acute respiratory distress syndrome in 4, disseminated intravascular coagulopathy in 3, renal failure in 3, secondary bacterial pneumonia in 2, and sepsis in 2 patients. Mechanical ventilation was 3 times more likely among pregnant compared with nonpregnant women. Among 7 first-trimester infections, 4 ended in spontaneous abortion. Four of 5 women with severe acute respiratory syndrome after 24 weeks' gestation delivered preterm. For Middle East respiratory syndrome, there were 13 case reports in pregnant women, of which 2 were asymptomatic, identified as part of a contact investigation; 3 patients (23%) died. Two pregnancies ended in fetal demise and 2 were born preterm. No evidence of in utero transmission was seen in severe acute respiratory syndrome or Middle East respiratory syndrome. Currently no coronavirus-specific treatments have been approved by the US Food and Drug Administration. Because coronavirus disease 2019 might increase the risk for pregnancy complications, management should optimally be in a health care facility with close maternal and fetal monitoring. Principles of management of coronavirus disease 2019 in pregnancy include early isolation, aggressive infection control procedures, oxygen therapy, avoidance of fluid overload, consideration of empiric antibiotics (secondary to bacterial infection risk), laboratory testing for the virus and coinfection, fetal and uterine contraction monitoring, early mechanical ventilation for progressive respiratory failure, individualized delivery planning, and a team-based approach with multispecialty consultations. Information on coronavirus disease 2019 is increasing rapidly. Clinicians should continue to follow the Centers for Disease Control and Prevention website to stay up to date with the latest information (https://www.cdc.gov/coronavirus/2019-nCoV/hcp/index.html). Copyright © 2020 Elsevier Inc. All rights reserved.

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1. **Coronavirus disease 2019 (COVID-19) during pregnancy: a case series**  
   Liu W. 2020;:No page numbers.

1. **Coronavirus Disease 2019 (COVID-19) During Pregnancy: Prevalence of Seroconversion, Effect on Maternal and Perinatal Outcomes and Risk of Vertical Transmission**  
   Chinese University of Hong K. ClinicalTrials.gov 2020;:No page numbers.

The objectives of this proposal are to: 1) determine the rate of SARS-CoV-2 seroconversion in unselected pregnant women in Hong Kong; 2) determine the rate of SARS-CoV-2 infection in women presenting with miscarriage and stillbirth; 3) follow the pregnancy course and perinatal outcome of confirmed COVID-19-infected pregnant cases; 4) determine the risk and characteristics of vertical transmission; and 5) evaluate the placental barrier, immune response and fetal damage in vertical transmission of SARS-CoV-2. A series of longitudinal and cross-sectional observational studies, and a laboratory-based study will be conducted to fulfil the 5 objectives.

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1. **Coronavirus disease 2019 (COVID-19) in pregnant women: A report based on 116 cases**  
   Yan J. American journal of obstetrics and gynecology 2020;:No page numbers.

1. **Coronavirus disease 2019 (COVID-19) pandemic and pregnancy**  
   Dashraath P. American journal of obstetrics and gynecology 2020;222:521-531.

The current coronavirus disease 2019 (COVID-19) pneumonia pandemic, caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is spreading globally at an accelerated rate, with a basic reproduction number (R0) of 2-2.5, indicating that 2-3 persons will be infected from an index patient. A serious public health emergency, it is particularly deadly in vulnerable populations and communities in which healthcare providers are insufficiently prepared to manage the infection. As of March 16, 2020, there are more than 180,000 confirmed cases of COVID-19 worldwide, with more than 7000 related deaths. The SARS-CoV-2 virus has been isolated from asymptomatic individuals, and affected patients continue to be infectious 2 weeks after cessation of symptoms. The substantial morbidity and socioeconomic impact have necessitated drastic measures across all continents, including nationwide lockdowns and border closures. Pregnant women and their fetuses represent a high-risk population during infectious disease outbreaks. To date, the outcomes of 55 pregnant women infected with COVID-19 and 46 neonates have been reported in the literature, with no definite evidence of vertical transmission. Physiological and mechanical changes in pregnancy increase susceptibility to infections in general, particularly when the cardiorespiratory system is affected, and encourage rapid progression to respiratory failure in the gravida. Furthermore, the pregnancy bias toward T-helper 2 (Th2) system dominance, which protects the fetus, leaves the mother vulnerable to viral infections, which are more effectively contained by the Th1 system. These unique challenges mandate an integrated approach to pregnancies affected by SARS-CoV-2. Here we present a review of COVID-19 in pregnancy, bringing together the various factors integral to the understanding of pathophysiology and susceptibility, diagnostic challenges with real-time reverse transcription polymerase chain reaction (RT-PCR) assays, therapeutic controversies, intrauterine transmission, and maternal-fetal complications. We discuss the latest options in antiviral therapy and vaccine development, including the novel use of chloroquine in the management of COVID-19. Fetal surveillance, in view of the predisposition to growth restriction and special considerations during labor and delivery, is addressed. In addition, we focus on keeping frontline obstetric care providers safe while continuing to provide essential services. Our clinical service model is built around the principles of workplace segregation, responsible social distancing, containment of cross-infection to healthcare providers, judicious use of personal protective equipment, and telemedicine. Our aim is to share a framework that can be adopted by tertiary maternity units managing pregnant women in the flux of a pandemic while maintaining the safety of the patient and healthcare provider at its core. Copyright © 2020 Elsevier Inc. All rights reserved.

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1. **Coronavirus disease 2019 during pregnancy: a systematic review of reported cases**  
   Della Gatta A. N. American journal of obstetrics and gynecology 2020;223:36-41.

OBJECTIVE: This study aimed to conduct a systematic review of the clinical outcomes reported for pregnant patients with coronavirus disease 2019., DATA SOURCES: The PubMed, CINAHL, and Scopus databases were searched using a combination of key words such as "Coronavirus and/or pregnancy," "COVID and/or pregnancy," "COVID disease and/or pregnancy," and "COVID pneumonia and/or pregnancy." There was no restriction of language to allow collection of as many cases as possible., STUDY ELIGIBILITY CRITERIA: All studies of pregnant women who received a coronavirus disease 2019 diagnosis using acid nucleic test, with reported data about pregnancy, and, in case of delivery, reported outcomes, were included., STUDY APPRAISAL AND SYNTHESIS METHODS: All the studies included have been evaluated according to the tool for evaluating the methodological quality of case reports and case series described by Murad et al., RESULTS: Six studies that involved 51 pregnant women were eligible for the systematic review. At the time of the report, 3 pregnancies were ongoing; of the remaining 48 pregnant women, 46 gave birth by cesarean delivery, and 2 gave birth vaginally; in this study, 1 stillbirth and 1 neonatal death were reported., CONCLUSION: Although vertical transmission of severe acute respiratory syndrome coronavirus 2 infection has been excluded thus far and the outcome for mothers and neonates has been generally good, the high rate of preterm delivery by cesarean delivery is a reason for concern. Cesarean delivery was typically an elective surgical intervention, and it is reasonable to question whether cesarean delivery for pregnant patients with coronavirus disease 2019 was warranted. Coronavirus disease 2019 associated with respiratory insufficiency in late pregnancies certainly creates a complex clinical scenario. Copyright © 2020 Elsevier Inc. All rights reserved.

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1. **Coronavirus disease 2019 in children: Current status**  
   Jeng M. J. Journal of the Chinese Medical Association : JCMA 2020;83:527-533.

Coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), emerged from China in December 2019. The outbreak further exploded in Europe and America in mid-March 2020 to become a global health emergency. We reviewed recent published articles and on-line open messages on SARS-CoV-2-positive infants and children younger than 20 years of age. Symptoms are usually less severe in children than in adults. Twelve critically or mortally ill children were found in the published or news reports before April 6, 2020. Vertical transmission from the mother to her fetus or neonate has not been proven definitively. However, six early-onset (<7 days) and 3 late-onset neonatal SARS-CoV-2 infections were found in the literature. We also summarized the presentations and contact information of 24 SARS-CoV-2-positive children announced by the Taiwan Centers for Disease Control. 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. Multidirectional investigations are crucial in the global fight against COVID-19.

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1. **Coronavirus disease 2019 in pregnancy**  
   Qiancheng X. International Journal of Infectious Diseases 2020;95:376-383.

Objectives: This study aimed to compare clinical courses and outcomes between pregnant and reproductive-aged non-pregnant women with COVID-19, and to assess the vertical transmission potential of COVID-19 in pregnancy. Method(s): Medical records of pregnant and reproductive-aged non-pregnant women hospitalized with COVID-19 from January 15 to March 15, 2020 were retrospectively reviewed. The severity of disease, virus clearance time, and length of hospital stay were measured as the primary objective, while the vertical transmission potential of COVID-19 was also assessed. Result(s): Eighty-two patients (28 pregnant women, 54 reproductive-aged non-pregnant women) with laboratory-confirmed COVID-19 were enrolled in this study. Univariate regression indicated no association between pregnancy and 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). Of the pregnant women, 22 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. Conclusion(s): Pregnant women have comparable clinical courses and outcomes 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, including vaginal delivery.Copyright © 2020 The Author(s)

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1. **Coronavirus Disease 2019 in Pregnancy: A Clinical Management Protocol and Considerations for Practice**  
   López M. Fetal Diagn Ther 2020;47:519-528.

The coronavirus disease 2019 (COVID-19) pandemic has represented a major impact to health systems and societies worldwide. The generation of knowledge about the disease has occurred almost as fast as its global expansion. The mother and fetus do not seem to be at particularly high risk. Nevertheless, obstetrics and maternal-fetal medicine practice have suffered profound changes to adapt to the pandemic. In addition, there are aspects specific to COVID-19 and gestation that should be known by specialists in order to correctly diagnose the disease, classify the severity, distinguish specific signs of COVID-19 from those of obstetric complications, and take the most appropriate management decisions. In this review we present in a highly concise manner an evidence-based protocol for the management of COVID-19 in pregnancy. We briefly contemplate all relevant aspects that we believe a specialist in obstetrics and maternal medicine should know, ranging from basic concepts about the disease and protection measures in the obstetric setting to more specific aspects related to maternal-fetal management and childbirth.

1. **Coronavirus disease 2019 in pregnant women: a report based on 116 cases**  
   Yan J. American journal of obstetrics and gynecology 2020;223:111.e111-111.e114.

BACKGROUND: The coronavirus disease 2019, caused by severe acute respiratory syndrome coronavirus 2, is a global public health emergency. Data on the effect of coronavirus disease 2019 in pregnancy are limited to small case series., OBJECTIVE: To evaluate the clinical characteristics and outcomes in pregnancy and the vertical transmission potential of severe acute respiratory syndrome coronavirus 2 infection., STUDY DESIGN: Clinical records were retrospectively reviewed for 116 pregnant women with coronavirus disease 2019 pneumonia from 25 hospitals in China between January 20, 2020, and March 24, 2020. Evidence of vertical transmission was assessed by testing for severe acute respiratory syndrome coronavirus 2 in amniotic fluid, cord blood, and neonatal pharyngeal swab samples., RESULTS: The median gestational age on admission was 38+0 (interquartile range, 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. Of the 116 cases, there were 8 cases (6.9%) of severe pneumonia but no maternal deaths. One of 8 patients who presented in the first trimester and early second trimester had a missed spontaneous abortion. Of 99 patients, 21 (21.2%) who delivered had preterm birth, including 6 with preterm premature rupture of membranes. The rate of spontaneous preterm birth before 37 weeks' gestation was 6.1% (6/99). One case of severe neonatal asphyxia resulted in neonatal death. Furthermore, 86 of the 100 neonates tested for severe acute respiratory syndrome coronavirus 2 had negative results; of these, paired amniotic fluid and cord blood samples from 10 neonates used to test for severe acute respiratory syndrome coronavirus 2 had negative results., CONCLUSION: Severe acute respiratory syndrome coronavirus 2 infection during pregnancy is not associated with an increased risk of spontaneous abortion and spontaneous preterm birth. There is no evidence of vertical transmission of severe acute respiratory syndrome coronavirus 2 infection when the infection manifests during the third trimester of pregnancy. Copyright © 2020 Elsevier Inc. All rights reserved.

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1. **Coronavirus disease-19 and fertility: viral host entry protein expression in male and female reproductive tissues**  
   Stanley K. E. Fertil Steril 2020;114:33-43.

OBJECTIVE: To identify cell types in the male and female reproductive systems at risk for SARS-CoV-2 infection because of the expression of host genes and proteins used by the virus for cell entry. DESIGN: Descriptive analysis of transcriptomic and proteomic data. SETTING: Academic research department and clinical diagnostic laboratory. PATIENT(S): Not applicable (focus was on previously generated gene and protein expression data). INTERVENTION(S): None. MAIN OUTCOME MEASURE(S): Identification of cell types coexpressing the key angiotensin-converting enzyme 2 (ACE2) and transmembrane serine protease 2 (TMPRSS2) genes and proteins as well as other candidates potentially involved in SARS-CoV-2 cell entry. RESULT(S): On the basis of single-cell RNA sequencing data, coexpression of ACE2 and TMPRSS2 was not detected in testicular cells, including sperm. A subpopulation of oocytes in nonhuman primate ovarian tissue was found to express ACE2 and TMPRSS2, but coexpression was not observed in ovarian somatic cells. RNA expression of TMPRSS2 in 18 samples of human cumulus cells was shown to be low or absent. There was general agreement between publicly available bulk RNA and protein datasets in terms of ACE2 and TMPRSS2 expression patterns in testis, ovary, endometrial, and placental cells. CONCLUSION(S): These analyses suggest that SARS-CoV-2 infection is unlikely to have long-term effects on male and female reproductive function. Although the results cannot be considered definitive, they imply that procedures in which oocytes are collected and fertilized in vitro are associated with very little risk of viral transmission from gametes to embryos and may indeed have the potential to minimize exposure of susceptible reproductive cell types to infection in comparison with natural conception. Publisher: Abstract available from the publisher. spa

1. **Coronavirus in pregnancy and delivery: rapid review**  
   Mullins E. Ultrasound in obstetrics & gynecology : the official journal of the International Society of Ultrasound in Obstetrics and Gynecology 2020;55:586-592.

OBJECTIVES: There are limited case series reporting the impact on women affected by coronavirus during pregnancy. In women affected by severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS), the case fatality rate appears higher in those affected in pregnancy compared with non-pregnant women. We conducted a rapid review to guide health policy and management of women affected by COVID-19 during pregnancy, which was used to develop the Royal College of Obstetricians and Gynaecologists' (RCOG) guidelines on COVID-19 infection in pregnancy., METHODS: Searches were conducted in PubMed and MedRxiv to identify primary case reports, case series, observational studies and randomized controlled trials describing women affected by coronavirus in pregnancy. Data were extracted from relevant papers. This review has been used to develop guidelines with representatives of the Royal College of Paediatrics and Child Health (RCPCH) and RCOG who provided expert consensus on areas in which data were lacking., RESULTS: From 9965 search results in PubMed and 600 in MedRxiv, 21 relevant studies, all of which were case reports or case series, were identified. From reports of 32 women to date affected by COVID-19 in pregnancy, delivering 30 babies (one set of twins, three ongoing pregnancies), seven (22%) were asymptomatic and two (6%) were admitted to the intensive care unit (ICU), one of whom remained on extracorporeal membrane oxygenation. No maternal deaths have been reported to date. Delivery was by Cesarean section in 27 cases and by vaginal delivery in two, and 15 (47%) delivered preterm. There was one stillbirth and one neonatal death. In 25 babies, no cases of vertical transmission were reported; 15 were reported as being tested with reverse transcription polymerase chain reaction after delivery. Case fatality rates for SARS and MERS were 15% and 27%, respectively. SARS was associated with miscarriage or intrauterine death in five cases, and fetal growth restriction was noted in two ongoing pregnancies affected by SARS in the third trimester., CONCLUSIONS: Serious morbidity occurred in 2/32 women with COVID-19, both of whom required ICU care. Compared with SARS and MERS, COVID-19 appears less lethal, acknowledging the limited number of cases reported to date and that one woman remains in a critical condition. Preterm delivery affected 47% of women hospitalized with COVID-19, which may put considerable pressure on neonatal services if the UK's reasonable worst-case scenario of 80% of the population being affected is realized. Based on this review, RCOG, in consultation with RCPCH, developed guidance for delivery and neonatal care in pregnancies affected by COVID-19, which recommends that delivery mode be determined primarily by obstetric indication and recommends against routine separation of affected mothers and their babies. We hope that this review will be helpful for maternity and neonatal services planning their response to COVID-19. © 2020 The Authors. Ultrasound in Obstetrics & Gynecology published by John Wiley & Sons Ltd on behalf of the International Society of Ultrasound in Obstetrics and Gynecology. Copyright © 2020 The Authors. Ultrasound in Obstetrics & Gynecology published by John Wiley & Sons Ltd on behalf of the International Society of Ultrasound in Obstetrics and Gynecology.

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1. **Coronavirus infection and pregnancy (Covid-19)**  
   Calda P. Aktualni Gynekologie a Porodnictvi 2020;12:17-19.

Guidelines. The Czech Society for Ultrasound in Obstetrics and Gynecology of the Czech Medical Association of J. E. Purkyne issues this opinion in connection with statements of the World Health Organization (WHO) and other international authorities regarding the concerns about COVID-19 infection in pregnancy. The impact of this year's coronavirus COVID-19 infection on pregnant women seems to be less severe than in previous years of H1N1 influenza type A, SARS-CoV or MERS-CoV. From the information published so far it was not possible to prove the transmission of infection from mother to fetus. It also seems that there is no risk of vertical transmission during breastfeeding. This opinion does not replace the recommendations and opinions issued by governmental bodies such as the Ministry of Health and others, and concerns solely consultation of pregnant women.Copyright © 2020, Aprofema s.r.o.

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1. **COVID 19 in neonates**  
   Kallem V. R. The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians 2020;:1-9.

Corona virus disease 2019 started in December 2019 as an outbreak of unexplained pneumonias in Wuhan, a city in Hubei province of China. This illness emerged as an epidemic in China and later spread to almost all countries over the globe except Antarctica. This is caused by a beta Corona virus, which is genetically similar to SARS virus. The predominant mode of transmission is via droplet spread, when the infected person coughs, sneezes or talks the virus is released in the respiratory secretions. As there are only a few cases of COVID 19 in neonates, there is no convincing evidence to support the possibility of vertical transmission. Clinical presentation in neonates is nonspecific, commonly observed are temperature instability, respiratory distress, poor feeding, lethargy, vomiting and diarrhea. Laboratory examinations may be nonspecific. Definitive test for 2019-nCoV is the detection of viral nucleic acid by real-time fluorescence polymerase chain reaction (RT-PCR). Suspected and confirmed COVID positive mothers should be delivered in separate delivery rooms and operation theaters. Since there is no approved treatment or drug for this disease, prevention of infection and breaking the chain of transmission plays a crucial role.

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1. **COVID-19 - guidance for neonatal settings**  
   Anon. Royal College of Paediatrics and Child Health 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=b005a83d10973c42af222f8c8746d9f3)

1. **COVID-19 - guidance for paediatric services**  
   Anon. Royal College of Paediatrics and Child Health 2020;:No page numbers.

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1. **COVID-19 and HELLP: Overlapping Clinical Pictures in Two Gravid Patients**  
   Futterman I. AJP Rep 2020;:No page numbers.

Background The impact of severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) on pregnancies is currently under investigation. There is a significant overlap between the clinical findings in novel coronavirus disease 2019 (COVID-19) and hemolysis, elevated liver enzymes, and low platelets syndrome (HELLP). Cases Patients presented at 22 and 29 weeks of gestation with suspected COVID-19 pneumonia. While the patient at 22 weeks of gestation subsequently had an intrauterine fetal demise, the patient at 29 weeks of gestation delivered via an emergency cesarean delivery for nonreassuring fetal status. Both patients also developed transaminitis, thrombocytopenia, and disseminated intravascular coagulation with a proof of hemolysis on peripheral smear. Conclusion Clinicians are encouraged to consider both of these diagnoses when caring for pregnant women during the COVID-19 pandemic to assure that both maternal and fetal concerns are addressed and treated appropriately.

1. **COVID-19 and Neonatal Respiratory Care: Current Evidence and Practical Approach**  
   Shalish W. American journal of perinatology 2020;37:780-791.

The novel coronavirus disease 2019 (COVID-19) pandemic has urged the development and implementation of guidelines and protocols on diagnosis, management, infection control strategies, and discharge planning. However, very little is currently known about neonatal COVID-19 and severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) infections. Thus, many questions arise with regard to respiratory care after birth, necessary protection to health care workers (HCW) in the delivery room and neonatal intensive care unit (NICU), and safety of bag and mask ventilation, noninvasive respiratory support, deep suctioning, endotracheal intubation, and mechanical ventilation. Indeed, these questions have created tremendous confusion amongst neonatal HCW. In this manuscript, we comprehensively reviewed the 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 placement of infants in isolation rooms, ideally with negative pressure. As information is changing rapidly, clinicians should frequently watch out for updates on the subject. KEY POINTS: . Novel coronavirus disease 2019 (COVID-19) pandemic urged development of guidelines.. . Neonatal COVID-19 disease is uncommon.. . Respiratory outcomes in neonates seems favorable.. . Current neonatal respiratory care should continue.. . Clinicians should watch frequently for updates.. Copyright Thieme Medical Publishers 333 Seventh Avenue, New York, NY 10001, USA.

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1. **COVID-19 and newborn health: systematic review**  
   Duran P. Revista panamericana de salud publica = Pan American journal of public health 2020;44:e54.

Objective: To describe perinatal and neonatal outcomes in newborns exposed to SARS-CoV-2., Methods: A systematic review was conducted by searching PubMed Central, LILACS, and Google Scholar using the keywords 'covid ' AND 'newborn' OR 'child' OR 'infant,' on 18 March 2020, and again on 17 April 2020. One researcher conducted the search and extracted data on demographics, maternal outcomes, diagnostic tests, imaging, and neonatal outcomes., Results: Of 256 publications identified, 20 met inclusion criteria and comprised neonatal outcome data for 222 newborns whose mothers were suspected or confirmed to be SARS-CoV-2 positive perinatally (17 studies) or of newborns referred to hospital with infection/pneumonia (3 studies). Most (12 studies) were case-series reports; all were from China, except three (Australia, Iran, and Spain). Of the 222 newborns, 13 were reported as positive for SARS-CoV-2; most of the studies reported no or mild symptoms and no adverse perinatal outcomes. Two papers among those from newborns who tested positive reported moderate or severe clinical characteristics. Five studies using data on umbilical cord blood, placenta, and/or amniotic fluid reported no positive results. Nine studies reported radiographic imaging, including 5 with images of pneumonia, increased lung marking, thickened texture, or high-density nodular shadow. Minor, non-specific changes in biochemical variables were reported. Studies that tested breast milk reported negative SARS-CoV-2 results., Conclusions: Given the paucity of studies at this time, vertical transmission cannot be confirmed or denied. Current literature does not support abstaining from breastfeeding nor separating mothers and newborns. Further evidence and data collection networks, particularly in the Americas, are needed for establishing definitive guidelines and recommendations.

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1. **COVID-19 and Obstetric Transmission**  
   University Hospitals Cleveland Medical C. ClinicalTrials.gov 2020;:No page numbers.

The aim of this study is to capture data, laboratory markers, and clinical outcomes of obstetric and neonatal outcomes in cases of COVID-19 during pregnancy in Cuyahoga County.

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1. **COVID-19 and pregnancy - where are we now? A review**  
   Rajewska A. Journal of perinatal medicine 2020;48:428-434.

The new acute respiratory disease severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) is highly contagious. It has caused many deaths, despite a relatively low general case fatality rate (CFR). The most common early manifestations of infection are fever, cough, fatigue and myalgia. The diagnosis is based on the exposure history, clinical manifestation, laboratory test results, chest computed tomography (CT) findings and a positive reverse transcription-polymerase chain reaction (RT-PCR) result for coronavirus disease 2019 (COVID-19). The effect of SARS-CoV-2 on pregnancy is not already clear. There is no evidence that pregnant women are more susceptible than the general population. In the third trimester, COVID-19 can cause premature rupture of membranes, premature labour and fetal distress. There are no data on complications of SARS-CoV-2 infection before the third trimester. COVID-19 infection is an indication for delivery if necessary to improve maternal oxygenation. Decision on delivery mode should be individualised. Vertical transmission of coronavirus from the pregnant woman to the fetus has not been proven. As the virus is absent in breast milk, the experts encourage breastfeeding for neonatal acquisition of protective antibodies.

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1. **COVID-19 and pregnancy: a review of current knowledge**  
   Maleki Dana P. Le infezioni in medicina 2020;28:46-51.

BACKGROUND: Since December 2019, coronavirus disease 2019 (COVID-19) has become a major health problem that is spreading all over the world. Several viral infections such as SARS, MERS, and influenza have been associated with adverse pregnancy outcomes. The question arises whether pregnant women are at greater risk of complications related to COVID-19 compared to other people What complications should we expect in the fetuses whose mothers were infected?, AIMS: This review aims to provide a summary of studies on symptoms of COVID-19 and the possible risks of COVID-19 among pregnant women, as well as complications in fetuses and neonates whose mothers were infected with COVID-19., METHODS: The included data were provided from Web of Science, Cochrane, PubMed, and Scopus which are extracted from the published studies in English until April 2nd, 2020 that contained data on the risk of COVID-19 in pregnancy., RESULTS: The early symptoms of patients with COVID-19 were fever, cough, dyspnea, myalgia, and fatigue; while production of sputum, headache, hemoptysis, and diarrhea were other symptoms which were less common. There is no evidence of vertical maternal-fetal transmission in pregnant women with COVID-19., CONCLUSIONS: The clinical findings in pregnant women with COVID-19 are not significantly different compared to other patients, and pregnant women with COVID-19 are not at a higher risk of developing critical pneumonia compared to non-pregnant women. Although, there has been no sign of vertical infection in infants, but maternal infection can cause serious problems such as preterm labour and fetal distress.

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1. **COVID-19 and Pregnant Patients**  
   Anon. DynaMed Plus 2020;:No page numbers.

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1. **COVID-19 and Special Populations**  
   Anon. DynaMed Plus 2020;:No page numbers.

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1. **COVID-19 and the 5G Conspiracy Theory: Social Network Analysis of Twitter Data**  
   Ahmed W. J Med Internet Res 2020;:No page numbers.

BACKGROUND: Since the beginning of December 2019, the coronavirus disease (COVID-19) has spread rapidly around the world, which has led to increased discussions across online platforms. These conversations have also included various conspiracies shared by social media users. Amongst them, a popular theory has linked 5G to the spread of COVID-19, leading to misinformation and the burning of 5G towers in the United Kingdom. The understanding of the drivers of fake news and quick policies oriented to isolate and rebate misinformation are keys to combating it. OBJECTIVE: The aim of this study is to develop an understanding of the drivers of the 5G COVID-19 conspiracy theory and strategies to deal with such misinformation. METHODS: This paper performs a social network analysis and content analysis of Twitter data from a 7-day period (Friday, March 27, 2020, to Saturday, April 4, 2020) in which the #5GCoronavirus hashtag was trending on Twitter in the United Kingdom. Influential users were analyzed through social network graph clusters. The size of the nodes were ranked by their betweenness centrality score, and the graph's vertices were grouped by cluster using the Clauset-Newman-Moore algorithm. The topics and web sources used were also examined. RESULTS: Social network analysis identified that the two largest network structures consisted of an isolates group and a broadcast group. The analysis also revealed that there was a lack of an authority figure who was actively combating such misinformation. Content analysis revealed that, of 233 sample tweets, 34.8% (n=81) contained views that 5G and COVID-19 were linked, 32.2% (n=75) denounced the conspiracy theory, and 33.0% (n=77) were general tweets not expressing any personal views or opinions. Thus, 65.2% (n=152) of tweets derived from nonconspiracy theory supporters, which suggests that, although the topic attracted high volume, only a handful of users genuinely believed the conspiracy. This paper also shows that fake news websites were the most popular web source shared by users; although, YouTube videos were also shared. The study also identified an account whose sole aim was to spread the conspiracy theory on Twitter. CONCLUSIONS: The combination of quick and targeted interventions oriented to delegitimize the sources of fake information is key to reducing their impact. Those users voicing their views against the conspiracy theory, link baiting, or sharing humorous tweets inadvertently raised the profile of the topic, suggesting that policymakers should insist in the efforts of isolating opinions that are based on fake news. Many social media platforms provide users with the ability to report inappropriate content, which should be used. This study is the first to analyze the 5G conspiracy theory in the context of COVID-19 on Twitter offering practical guidance to health authorities in how, in the context of a pandemic, rumors may be combated in the future.

1. **COVID-19 and the production of knowledge regarding recommendations during pregnancy: a scoping review**  
   Mascarenhas V. H. A. Rev Lat Am Enfermagem 2020;28:e3348.

OBJECTIVE: to map the production of knowledge regarding recommendations for providing care to pregnant women dealing with the novel coronavirus. METHOD: scoping review, using a broadened strategy to search databases and repositories, as well as the reference lists in the sources used. Data were collected and analyzed by two independent reviewers. Data were analyzed and synthesized in the form of a narrative. RESULTS: the final sample was composed of 24 records, the content of which was synthesized in these conceptual categories: clinical manifestations, diagnosis, treatment, working pregnant women, vaccine development, complications, prenatal care, vertical transmission, and placental transmissibility. It is recommended to confirm pregnancy and disease early on, to use technological resources for screening and providing guidance and support to pregnant women. CONCLUSION: recommendations emphasize isolation, proper rest, sleep, nutrition, hydration, medications, and in the more severe cases, oxygen support, monitoring of vital signs, emotional support, and multiprofessional and individualized care. Medications should be used with caution due to a lack of evidence. Future research is needed to analyze the impact of the infection at the beginning of pregnancy and the psychological aspects of pregnant women infected with the virus. Publisher: Abstract available from the publisher. por spa

1. **COVID-19 and viral hepatitis elimination programs: Are we stepping backward?**  
   Karimi-Sari H. Liver International 2020;:No page numbers.

As Mendlowitz and colleagues mentioned in a recent commentary, the World Health Organization set a goal for the elimination of viral hepatitis until 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 different parts such as testing, treatment, immunization against hepatitis B virus (HBV), preventing mother to child transmission, blood safety, and harm reduction. Now, COVID-19 is spreading fast throughout the world and more than one million people have been affected by this virus so far. While all attentions are now on providing effective medicines and vaccines for COVID-19, we should not forget other viruses and diseases.Copyright This article is protected by copyright. All rights reserved.

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1. **COVID-19 Contact Study - Immunoreaction after possible SARS-CoV-2 COVID-19 contact**  
   Medizinische Hochschule H. Ictrp 2020;:No page numbers.

Inclusion criteria: health care worker. This study has two phases. After informed consent phase 1 assesses longitudinally the seroconversion against SARS CoV-2 in departments with intensive patient contact, including COVID-19 patients, correlates to Symptoms and assesses the duration and kinetics of antibodyresponse in a limited cohort of health-care workers.In addition biomaterials will be stored for broader immunological Analysis (PBMCs, antibodies, cytokindes). The results of Phase 1 will enable an adaption of phase 2, if necessary. Phase two is a vertical study on more employes of the university hospial and assessed the prevalence of SARS-CoV-2-IgG. This prevalence will be correlated to exposure data of certain departments.Primary outcome: Seroconversion (IgG) with quantitiative ELISA

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1. **COVID-19 in a 26-week preterm neonate**  
   Piersigilli F. The Lancet. Child & adolescent health 2020;4:476-478.

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1. **COVID-19 in Children, Pregnancy and Neonates: A Review of Epidemiologic and Clinical Features**  
   Petra Z. Pediatric Infectious Dsease Journal 2020;39:469-477.

COVID-19 in Children, Pregnancy and Neonates: A Review of Epidemiologic and Clinical Features. The novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic has spread rapidly across the globe. In contrast to initial reports, recent studies suggest that children are just as likely as adults to become infected with the virus but have fewer symptoms and less severe disease. In this review, we summarize the epidemiologic and clinical features of children infected with SARS-CoV-2 reported in pediatric case series to date. We also summarize the perinatal outcomes of neonates born to women infected with SARS-CoV-2 in pregnancy. We found 11 case series including a total of 333 infants and children. Overall, 83% of the children had a positive contact history, mostly with family members. The incubation period varied between 2 and 25 days with a mean of 7 days. The virus could be isolated from nasopharyngeal secretions for up to 22 days and from stool for more than 30 days. Co-infections were reported in up to 79% of children (mainly mycoplasma and influenza). Up to 35% of children were asymptomatic. The most common symptoms were cough (48%; range 19%-100%), fever (42%; 11%-100%) and pharyngitis (30%; 11%-100%). Further symptoms were nasal congestion, rhinorrhea, tachypnoea, wheezing, diarrhea, vomiting, headache and fatigue. Laboratory test parameters were only minimally altered. Radiologic findings were unspecific and included unilateral or bilateral infiltrates with, in some cases, ground-glass opacities or consolidation with a surrounding halo sign. Children rarely needed admission to intensive care units (3%), and to date, only a small number of deaths have been reported in children globally. Nine case series and 2 case reports described outcomes of maternal SARS-CoV-2 infection during pregnancy in 65 women and 67 neonates. Two mothers (3%) were admitted to intensive care unit. Fetal distress was reported in 30% of pregnancies. Thirty-seven percent of women delivered preterm. Neonatal complications included respiratory distress or pneumonia (18%), disseminated intravascular coagulation (3%), asphyxia (2%) and 2 perinatal deaths. Four neonates (3 with pneumonia) have been reported to be SARS-CoV-2 positive despite strict infection control and prevention procedures during delivery and separation of mother and neonates, meaning vertical transmission could not be excluded.

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1. **COVID-19 in children: Current status**  
   Jeng M. J. Journal of the Chinese Medical Association : JCMA 2020;:No page numbers.

Coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), emerged from China in December 2019. The outbreak further exploded in Europe and America in mid-March 2020 to become a global health emergency. We reviewed recent published articles and on-line open messages on SARS-CoV-2-positive infants and children younger than 20 years of age. Symptoms are usually less severe in children than in adults. Twelve critically or mortally ill children were found in the published or news reports before April 6, 2020. Vertical transmission from the mother to her fetus or neonate has not been proven definitively. However, six early-onset (<7 days) and 3 late-onset neonatal SARS-CoV-2 infections were found in the literature. We also summarized the presentations and contact information of 24 SARS-CoV-2-positive children announced by the Taiwan Centers for Disease Control. 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. Multi-directional investigations are crucial in the global fight against COVID-19.

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1. **Covid-19 in Pregnancy: a French Population-based Cohort of Women and Newborns**  
   Assistance Publique - Hopitaux de P. ClinicalTrials.gov 2020;:No page numbers.

The purpose of this study is to characterize the incidence and clinical features of the maternal COVID 19 infection, as well as the associated morbidity of the mother and the child, in the French context

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1. **COVID-19 in pregnancy: Risk of adverse neonatal outcomes**  
   Mehan A. Journal of medical virology 2020;:No page numbers.

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1. **COVID-19 in Pregnant Women and Neonates: A Systematic Review of the Literature with Quality Assessment of the Studies**  
   Trippella G. Pathogens (Basel, Switzerland) 2020;9:No page numbers.

The SARS-CoV-2 virus emerged in December 2019 and then spread globally. Little is still known about the impact of COVID-19 on pregnant women and neonates. A review of the literature was performed according to the PRISMA guideline recommendations, searching the MEDLINE and EMBASE databases. Studies' quality assessments were performed using the JBI Critical Appraisal Checklist. A total of 37 studies were included, involving 275 pregnant women with COVID-19 and 248 neonates. The majority of pregnant women presented with mild to moderate symptoms, only 10 were admitted in the ICU, and one died. Two stillbirths were reported and the incidence of prematurity was 28%. Sixteen neonates were tested positive for SARS-CoV-2 by RT-PCR, and nine of them were born from mothers infected during pregnancy. Neonatal outcomes were generally good: all the affected neonates recovered. RT-PCR for SARS-CoV-2 yielded negative results on amniotic fluid, vaginal/cervical fluids, placenta tissue, and breast milk samples. SARS-CoV-2 infection in pregnant women appeared associated with mild or moderate disease in most cases, with a low morbidity and mortality rate. The outcomes of neonates born from infected women were mainly favorable, although neonates at risk should be closely monitored. Further studies are needed to investigate the possibility of vertical transmission.

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1. **COVID-19 infection during pregnancy: fetus as a patient deserves more attention**  
   Stefanovic V. Journal of perinatal medicine 2020;48:438-440.

The novel coronavirus disease 2019 (COVID-19) pandemic is causing concern also for the management and outcome of COVID-19-positive pregnant women and their offspring, as reported cases are rare. Current evidence suggests the association of COVID-19 infection in pregnancy with both severe maternal morbidity requiring intensive care and perinatal complications (preterm birth with consequent neonatal morbidity and even perinatal death). Most of the reported cases focused specifically on the maternal outcomes and possible vertical transmission, but less attention has been paid to fetus as a patient in such pregnancies. The use of antenatal steroids and fetal neuroprotection with magnesium sulfate is clearly underreported. Several recently issued guidelines suggest lowering the upper gestational age for antenatal steroid administration and also advocate extreme caution or even restraining from the use of magnesium sulfate. Also, the rate of cesarean deliveries among COVID-19 women is unacceptably high. Here we provide arguments for NOT changing the existing guidelines and caution against cesarean delivery that was the prevalent delivery mode in the reported cases and case series.

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1. **COVID-19 Patient Positioning Pragmatic Trial**  
   Vanderbilt University Medical C. ClinicalTrials.gov 2020;:No page numbers.

This study aims to determine if provider-recommended guidance on supine (on back) vs. prone (on stomach) positioning of patients testing positive for COVID-19 requiring supplemental oxygen, but not yet mechanically ventilated, improves outcomes in the inpatient setting. This study will be performed as a pragmatic clinical trial.

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1. **COVID-19 pneumonia and pregnancy; a systematic review and meta-analysis**  
   Kasraeian M. The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians 2020;:1-8.

Background: The new SARS-CoV-2 originated from Wuhan, China is spreading rapidly worldwide. A number of SARS-CoV-2 positive pregnant women have been reported. However, more information is still needed on the pregnancy outcome and the neonates regarding COVID-19 pneumonia. Material and Methods: A systematic search was done and nine articles on COVID-19 pneumonia and SARS-CoV-2 positive pregnant women were extracted. Some maternal-fetal characteristics were extracted to be included in the meta-analysis.Results: The present meta-analysis was conducted on 87 SARS-CoV-2 positive pregnant women. Almost 65% of the patients reported a history of exposure to an infected person, 78% suffered from mild or moderate COVID-19, 99.9% had successful termination, 86% had cough, and 68% had fever (p = .022 and p < .001). The overall proportions of vertical transmission, still birth, and neonatal death were zero, 0.002, and, 0.002, respectively (p = 1, p = .86, and p = .89, respectively). The means of the first- and fifth-minute Apgar scores were 8.86 and 9, respectively (p < .001 for both). The confounding role of history of underlying diseases with an estimated overall proportion of 33% (p = .03) resulted in further investigations due to sample size limitation. A natural history of COVID-19 pneumonia in the adult population was presented, as well. Conclusion: Currently, no evidence of vertical transmission has been suggested at least in late pregnancy. No hazards have been detected for fetuses or neonates. Although pregnant women are at an immunosuppressive state due to the physiological changes during pregnancy, most patients suffered from mild or moderate COVID-19 pneumonia with no pregnancy loss, proposing a similar pattern of the clinical characteristics of COVID-19 pneumonia to that of other adult populations.

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1. **COVID-19 pneumonia in an Iraqi pregnant woman with preterm delivery**  
   Al-Kuraishy H. Asian Pacific Journal of Reproduction 2020;9:156-158.

Coronavirus disease 2019 (COVID-19) is a highly infectious disease due to the severe acute respiratory syndrome coronavirus type 2 (SARS-CoV2). Vertical transmission and clinical presentation of COVID-19 in pregnancy is still obscure. Additionally, the potential hazard of COVID-19 in pregnancy on the fetus and post-delivery risk for the neonate remain under investigations. Patient concern: A young-aged Asian pregnant woman with 28 weeks of gestation presented with fever, dyspnoea, headache, and joint pain with decreased fetal movement for about one week. Diagnosis: The patient was diagnosed with COVID-19 pneumonia. Intervention(s): The patient was referred to the quarantine sector and was treated with chloroquine orally, intravenous fluid and other supportive treatment. Outcome(s): After one week of treatment, the patient improved. Seventeen days after admission to hospital and at 30 weeks of gestation, she started vaginal preterm delivery of a viable healthy neonate with negative COVID-19 test for two occasions. Lessons: COVID-19 pneumonia during pregnancy presents with similar clinical presentation of non-pregnant women. COVID-19 pneumonia during pregnancy increases the risk of preterm labour without evidence of vertical transmission.Copyright © 2020 Asian Pacific Journal of Reproduction Produced by Wolters Kluwer- Medknow. All rights reserved.

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1. **COVID-19 Registered Trials – and analysis**  
   Anon. Oxford COVID-19 Evidence Service 2020;:No page numbers.

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1. **COVID-19 related obstetric and neonatal outcome study (CRONOS)**  
   Vorstand der Deutschen Gesellschaft fur Perinatale Medizin eVc/o Conventus C. Ictrp 2020;:No page numbers.

Summary of project A novel coronavirus, termed SARS-CoV-2 (or COVID-19), has rapidly spread across the globe creating a massive public health problem. It causes potentially a life-threatening respiratory distress disease. Previous epidemics of many emerging viral infections have typically resulted in poor obstetrical outcomes including maternal morbidity and mortality, maternal-fetal transmission of the virus, and perinatal infections and death. The available literature describes only 38 pregnant women with SARS-CoV-2 with no maternal death and no evidence for intrauterine or transplacental transmission of the virus to their fetuses. The planned study is non-interventional prospective cohort study in order to overcome the lack of knowledge about epidemiology and clinical course of SARS-COV-2 in pregnant women to further develop evidence-based diagnostic and therapeutic recommendations. Data collection will be performed retrospectively after a pregnant patient case has been completed (treatment is finished or patient’s death). Recruitment will be bidirectional, including past patients, and prospective identification of patients with confirmed SARS-CoV-2 diagnosis. Only data from standard of care treatment will be collected (secondary data use). All data will be pseudonymised for anonymity from initial collection and entered to the online database https://castoredc.com. Inclusion criteria: Proven Covid-19 infection during pregnancy and childbed Intervention 1: Medical history, clinical data of Covid-19 positive pregnant women will be collected during pregnancy, delivery, of the neonate and during childbed.Primary outcome: Trying to identify the risk/risk factors for bad outcome of Covid-19 infection during pregnancy for mother and baby until the end of the puerperium (6 weeks postpartum).

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1. **COVID-19 Suggestions for the care of the perinatal population**  
   Anon. Covid-19 Ad hoc guidelines 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=cfc8e2443a3b97171366759f47c8d7fa)

1. **Covid-19: ASRM Recommendations For Reducing The Risk Of Viral Transmission During Fertility Treatment With The Use Of Autologous Gametes**  
   Anon. Society for Assisted Reproductive Technology 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=99088d67d942c95a314c7598b6ba6c6c)

1. **Covid-19: Clinical guide for the temporary reorganisation of intrapartum maternity care during the coronavirus pandemic**  
   Anon. Covid-19 Ad hoc guidelines 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=1116afd7c8c021294dff1ffb4c10241e)

1. **Covid-19: Immunity after SARS-CoV-2 infection**  
   Anon. Norwegian Institute of Public Health 2020;:No page numbers.

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1. **COVID-19: lessons to date from China**  
   Lu X. Archives of disease in childhood 2020;:No page numbers.

The pandemic due to a novel coronavirus has been sweeping across different regions of the globe since January 2020. Early reports of this infection due to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) consisted of mostly adult patients. As the outbreak spreads rapidly beyond the epicentre of Wuhan, it becomes clear that infants and children of all ages are susceptible to this infection. In China, there have been more than 1200 paediatric cases. Most paediatric patients acquire the infection through household contact with infected adults. The disease in children is usually self-limiting and most infected children will recover uneventfully within 7-10 days. Other than symptoms of the respiratory tract, many children may present with gastrointestinal symptoms. Older children are more likely to have asymptomatic infection. Although deaths related to SARS-CoV-2 are rarely reported in the paediatric age group, young children and those with underlying medical conditions are more likely to develop severe illness. Only a small fraction of neonates born to infected mother would acquire the virus by vertical transmission. Because a large proportion of children and adolescents may have asymptomatic or mildly symptomatic infection, children are likely to play an important role in community transmission of this infection. Screening of children who have a definitive contact history will facilitate early diagnosis and isolation of all infected children. This review summarises the lessons learned in China with regard to the current understanding of SARS-CoV-2 infection in the paediatric population. Copyright © Author(s) (or their employer(s)) 2020. No commercial re-use. See rights and permissions. Published by BMJ.

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1. **COVID-19: Operational framework for maternity and neonatal services**  
   Anon. Queensland Health 2020;:No page numbers.

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1. **COVID-19: Personal Protective Equipment (PPE)**  
   Anon. Royal College of Psychiatrists 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=84a9cb8bf2501231cabe34a9865d6eb9)

1. **Covid-19: Recommendations for GDM screening and oral glucose tolerance test (OGTT) during pregnancy and postpartum**  
   Anon. Queensland Health 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=6b4fb7d1890d6ce66182c5dfd7ce7f48)

1. **COVID-19: review of case reports**  
   Oda Y. J Anesth 2020;:1-4.

Recently published case reports relating to anesthesia in patients with coronavirus disease (COVID-19) were reviewed. The diagnosis of COVID-19 was confirmed by positive results of reverse transcriptase polymerase chain reaction test for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Numerous reports handled emergency cesarean delivery. Primary symptoms and laboratory data of pregnant women with COVID-19 were similar to those of non-pregnant patients. Although the mortality rate is reported to be high after surgery in patients with COVID-19, cesarean delivery was successfully performed under regional anesthesia in most cases and postoperative course was favorable both in the parents and newborns. There is no direct evidence of vertical mother-to-child transmission of SARS-CoV-2; however, a diagnosis of COVID-19 was made in a newborn two hours after delivery from a pregnant woman with COVID-19, based on the increased immunoglobulin levels and deranged liver function, suggesting that its possibility cannot be completely eliminated. Emergency cerebral shunt reconstruction was performed repeatedly in an eight-month-old boy with COVID-19. The tracheal tube was removed in the operating room after surgery and postoperative course was uneventful. All the procedures should be performed in isolated operating rooms with medical staff with level-3 personal protection to ensure the safety of patients and health care providers.

1. **Covid-19: The time to shield all pregnant frontline workers is now**  
   Brickley E. B. The BMJ 2020;369:369m1792.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=cf0b25d9c02e5eeb36bac4c811bf2abe)

1. **COVID-19 and Treg/Th17 imbalance: Potential relationship to pregnancy outcomes**  
   Muyayalo K. P. Am J Reprod Immunol 2020;:e13304.

Caused by a novel type of virus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), coronavirus disease 2019 (COVID-19) constitutes a global public health emergency. Pregnant women are considered to have a higher risk of severe morbidity and even mortality due to their susceptibility to respiratory pathogens and their particular immunological state. Several studies assessing SARS-CoV-2 infection during pregnancy reported adverse pregnancy outcomes in patients with severe conditions, including spontaneous abortion, preterm labor, fetal distress, cesarean section, preterm birth, neonatal asphyxia, neonatal pneumonia, stillbirth, and neonatal death. However, whether these complications are causally related to SARS-CoV-2 infection is not clear. Here, we reviewed the scientific evidence supporting the contributing role of Treg/Th17 cell imbalance in the uncontrolled systemic inflammation characterizing severe cases of COVID-19. Based on the recognized harmful effects of these CD4(+) T cell subset imbalances in pregnancy, we speculated that SARS-CoV-2 infection might lead to adverse pregnancy outcomes through the deregulation of otherwise tightly-regulated Treg/Th17 ratios, and to subsequent uncontrolled systemic inflammation. Moreover, we discuss the possibility of vertical transmission of COVID-19 from infected mothers to their infants, which could also explain adverse perinatal outcomes. Rigorous monitoring of pregnancies and appropriate measures should be taken to prevent and treat early eventual maternal and perinatal complications.

1. **COVID19 and Breastfeeding: Not That Simple**  
   Berveiller P. Journal of Human Lactation 2020;:0890334420917102.

1. **Cultural orientation, power, belief in conspiracy theories, and intentions to reduce the spread of COVID-19**  
   Biddlestone M. Br J Soc Psychol 2020;:No page numbers.

The current study investigated cultural and psychological factors associated with intentions to reduce the spread of COVID-19. Participants (n = 704) completed measures of individualism-collectivism, belief in conspiracy theories about COVID-19, feelings of powerlessness, and intentions to engage in behaviours that reduce the spread of COVID-19. Results revealed that vertical individualism negatively predicted intentions to engage in social distancing, directly and indirectly through both belief in COVID-19 conspiracy theories and feelings of powerlessness. Vertical collectivism positively predicted social distancing intentions directly. Horizontal collectivism positively predicted social distancing intentions indirectly through feelings of powerlessness. Finally, horizontal collectivism positively predicted hygiene-related intentions both directly and indirectly through lower feelings of powerlessness. These findings suggest that promoting collectivism may be a way to increase engagement with efforts to reduce the spread of COVID-19. They also highlight the importance of examining the interplay between culture and both personal feelings (powerlessness) and information consumption (conspiracy theories) during times of crisis.

1. **Current epidemiology and guidance for COVID-19 caused by SARS-CoV-2 virus, in children: March 2020**  
   Anon. Canadian Paediatric Society 2020;:No page numbers.

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1. **Current Knowledge on Covid-19 in Children - Cautious Optimism**  
   Somekh I. Harefuah 2020;159:315-319.

INTRODUCTION: The recent outbreak of COVID-19 which began in Wuhan, China in December 2019 and rapidly spread worldwide evolving into a pandemic, poses a global health emergency. As of mid-April over 2 million people have been infected with over 145 thousand casualties. The disease is more severe in the older population, whereas in children lower infection rates and milder symptoms are more common. Severe symptoms in the pediatric population, although uncommon, have been reported mainly in infants younger than 1 year of age. Perinatal transmission is infrequent and associated with a relatively mild illness in the newborn.

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1. **Current State of Knowledge About SARS-CoV-2 and COVID-19 Disease in Pregnant Women**  
   Gujski M. Medical science monitor : international medical journal of experimental and clinical research 2020;26:e924725.

During any epidemic of infectious diseases, pregnant women constitute an extremely sensitive group due to altered physiology and immune functions, and thus altered susceptibility to infection. With regard to the management of pregnant COVID-19 patients, in addition to the treatment of the infection itself, which is not that different from generally accepted principles, it is interesting to consider which obstetric procedures should be used to minimize the adverse effects on mother and child. Questions arise concerning the continuation of pregnancy, how to terminate the pregnancy, the possibility of virus transmission through the placenta, isolation of the newborn after birth, and breastfeeding. The aim of this study was to review the current state of knowledge about SARS-CoV-2 infection and COVID-19 disease in pregnant women. Because the epidemic began in China, most of the available literature comes from studies conducted there. The studies used to prepare this review article are the first non-randomized studies containing small groups of examined women. They do not provide clear indications, but show that in an epidemic situation, special care should be taken in pregnancy management, making decisions about termination of pregnancy, and handling of the newborn baby to minimize the risk of subsequent health consequences. Further analysis is needed on the incidence of COVID-19 among pregnant women and its consequences. This will allow us to develop recommendations on how to deal with patients in the future in case of repeated epidemic emergencies.

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1. **Delivery in asymptomatic Italian woman with SARS-CoV-2 infection**  
   De Socio G. V. Mediterranean Journal of Hematology and Infectious Diseases 2020;12:e2020033.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=2d164f93ef122d5f8e3512afade1518d)

1. **Delivery in pregnant women infected with SARS-CoV-2: A fast review**  
   Parazzini F. International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics 2020;150:41-46.

BACKGROUND: Few case reports and clinical series exist on pregnant women infected with SARS-CoV-2 who delivered., OBJECTIVE: To review the available information on mode of delivery, vertical/peripartum transmission, and neonatal outcome in pregnant women infected with SARS-CoV-2., SEARCH STRATEGY: Combination of the following key words: COVID-19, SARS-CoV-2, and pregnancy in Embase and PubMed databases., SELECTION CRITERIA: Papers reporting cases of women infected with SARS-CoV-2 who delivered., DATA COLLECTION AND ANALYSIS: The following was extracted: author; country; number of women; study design; gestational age at delivery; selected clinical maternal data; mode of delivery; selected neonatal outcomes., MAIN RESULTS: In the 13 studies included, vaginal delivery was reported in 6 cases (9.4%; 95% CI, 3.5-19.3). Indication for cesarean delivery was worsening of maternal conditions in 31 cases (48.4%; 95% CI, 35.8-61.3). 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., CONCLUSIONS: 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. Low frequency of spontaneous preterm birth and general favorable immediate neonatal outcome are reassuring. Copyright © 2020 International Federation of Gynecology and Obstetrics.

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1. **Delivery room considerations for infants born to mothers with suspected or proven COVID-19**  
   Anon. Canadian Paediatric Society 2020;:No page numbers.

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1. **Detection of COVID-19 in a Vulvar Lesion**  
   Rubin E. S. American journal of perinatology 2020;:No page numbers.

As new information about coronavirus disease 2019 (COVID-19) is rapidly discovered, clinicians are better equipped to make informed decisions for their patients. While current research suggests COVID-19 viral antigen is not found in vaginal secretions, its detectability in the female lower genital tract may have clinical implications for obstetric and gynecologic care for women. We present a case of a woman at 31 weeks' gestation with simultaneous upper respiratory symptoms and vulvovaginitis. She was found to have a vulvar lesion positive for severe acute respiratory syndrome-COVID by viral swab. This case shows that COVID-19 is detectable in the vulva. This may have implications for health care workers' exposure and personal protective equipment needs. While vertical transmission has largely not been reported, the presence of detectable virus in the female lower genital tract makes this a continued possibility and area of study. KEY POINTS: . COVID-19 is detectable in the female lower genital tract.. . The detection of COVID-19 in the vulva may have implications for personal protective equipment use.. . The detection of COVID-19 in vulvovaginal lesions makes vertical transmission a continued possibility.. Copyright Thieme Medical Publishers 333 Seventh Avenue, New York, NY 10001, USA.

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1. **Detection of SARS-CoV-2 in Follicular Fluid and Cumulus-oocyte-complexes in COVID-19 Patients**  
   Brussel C. U. ClinicalTrials.gov 2020;:No page numbers.

Recently, the world was shaken awake by a pandemic caused by a novel coronavirus SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2). In most nations drastic isolation measures were taken to minimize the further spread of the Coronavirus Disease 2019 (COVID-19). Being the first pandemic sparked by a Coronavirus, little was known on COVID-19 and its implications on general health. Our understanding on the virus and its potential effects on health is growing. In Belgium, the situation is stabilizing, and doctors and healthcare workers are slowly recommencing routine work and consultations. As also fertility treatments were abruptly interrupted, many patients are in need to resume their treatment. The limited evidence of SARS-CoV-2 on pregnancy seems to be rather satisfying1, but practically nothing is known about the possible impact of an active SARS-CoV-2 infection on female gametes. Viral transmission occurs predominantly through respiratory droplets, but transmission to gametes cannot be ruled out. Since the onset of the pandemic, knowledge about the molecular details of SARS-CoV-2 infection rapidly grew. Coronaviruses are enveloped RNA viruses. For a virus to deliver their genome into the host cell, attachment and entrance into that cell is a crucial step. The coronavirus surface protein spike (S) mediates entry into target cells by binding to a cellular receptor and subsequent fusing of the viral envelope with a host cell membrane. The SARS-CoV-2-S protein (SARS-S) utilizes angiotensin-converting enzyme 2 (ACE2) as a receptor for host cell entry. Host proteases such as transmembrane serine protease 2 (TMPRSS2) are then needed to cleave the viral S protein, allow-ing permanent fusion of the viral and host cell membranes2. Expression of ACE2 and TMPRSS2 has been shown in testicular, uterine and placental cells. Based on available transcriptomic data, co-expression of ACE2 and TMPRSS2 is also seen on oocyte level, but the possible impact on reproduction is unknown. The BSG (basigin or CD147), a receptor on host cells, was also identified as a possible route for viral invasion.

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1. **Detection of SARS-COV-2 in Placental and Fetal Membrane Samples**  
   Penfield C. A. American journal of obstetrics & gynecology MFM 2020;:100133.

Introduction: Since the first reports of the emergence of the novel coronavirus SARS-CoV-2 and its associated disease (COVID-19), concerns remain about whether the virus is transmissible in pregnant women from the mother to the fetus during either the antepartum period or the process of labor and delivery. One recent review reported that in a small number of cases, two PCR swabs of the placenta were sent in additional to neonatal and cord blood testing, and both placental PCR swabs were negative.1 Other studies have demonstrated the finding of SARS-CoV2 IgM in neonates born to mothers diagnosed with COVID-19 during pregnancy,2,3 findings that may indicate vertical transmission of the virus in utero. We report our experience with placental/membrane SARS-CoV2 RNA PCR swab results after delivery to a series of symptomatic mothers with confirmed COVID-19 infection in pregnancy., Methods: IRB approval was obtained. All pregnant patients diagnosed with COVID-19 who gave birth between March 1, 2020 and April 20, 2020 at NYU Langone Health were identified by a search of the electronic medical record. Charts were reviewed for documentation of SARS-CoV-2 RNA RT-PCR testing sent from either the placenta or membranes within 30 minutes following delivery. PCR testing for SARS-COV-2 was performed using the cobas SARS-CoV-2 assay (Roche) or the Cepheid Xpert Xpress assay. Placental swabs were obtained from the amniotic surface after clearing the surface of maternal blood (placental PCR). Membrane swabs were obtained from between the amnion and chorion after manual separation of the membranes (membrane PCR). Maternal COVID-19 illness was categorized as mild, severe, or critical.4 The time interval from maternal diagnosis of COVID-19 to delivery was calculated in days. Infants were tested with nasopharyngeal swabs for SARS-CoV-2 PCR between days of life 1 and 5 while hospitalized. Hospitalized infants were also assessed for clinical signs and symptoms, including fever, cough, and nasal congestion., Results: Of 32 COVID-19 positive pregnant patients who gave birth in this timeframe, placental or membrane swabs were sent from 11 patients (Table). Three of 11 swabs were positive. None of the infants tested positive for SARS-CoV2 on days of life 1 through 5, and none demonstrated symptoms of COVID-19 infection., Discussion: Of 11 placental or membrane swabs sent following delivery, 3 swabs were positive for SARS-CoV-2, all in women with moderate to severe COVID-19 illness at time of delivery. This is the first study to demonstrate the presence of SARS-CoV-2 RNA in placental or membrane samples. While there were no clinical signs of vertical transmission, our findings raise the possibility of intrapartum viral exposure. Given the mixing of maternal and fetal fluid and tissue at time of delivery, the origin of the detected SARS-CoV-2 RNA in our series is unclear. It may represent contamination from maternal blood, amniotic fluid, or COVID-19 infection of the membranes and amniotic sac. For those infants who were delivered vaginally, contamination with vaginal secretions is also a possible source, although prior studies on vaginal secretions have failed to demonstrate the presence of COVID-19.5,6Although all of our neonates tested negative in the first 5 days of life, many were born via cesarean deliveries with decreased length of exposure to these tissues, which may be associated with a decreased likelihood of vertical transmission. Additionally, nasopharyngeal testing immediately after delivery may not be the ideal approach to evaluate vertical transmission if exposure occurs at the time of delivery, as the virus may require a longer incubation period before these swabs convert to positive. In summary, the presence of viral RNA by RT-PCR in placenta/membranes at the time of delivery suggests the need for further research into the possibility of vertical transmission. Copyright © 2020 Elsevier Inc. All rights reserved.

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1. **Development of child immunity in the context of COVID-19 pandemic**  
   Kloc M. Clinical Immunology 2020;217:108510.

Children, because of having an immature immune system, are usually more prone than the adults to the microbial infections and have more severe symptoms, which is especially true for the newborns, and very young children. However, the review of clinical data from the current COVID-19 pandemic indicates otherwise. We discuss here what are the main features and components of children's immune system, the role of maternal transmission of immunity, and what are the possible explanations for the seemingly lower infection rate and severity of COVI-19 in children.Copyright © 2020 Elsevier Inc.

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1. **Dilemmas and Priorities in the Neonatal Intensive Care Unit during the COVID-19 Pandemic**  
   Breindahl M. Danish medical journal 2020;67:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=0b106babd0600aa5cf9f8532768e5142)

1. **Disappearance of SARS-CoV-2 Antibodies in Infants Born to Women with COVID-19, Wuhan, China**  
   Gao J. Emerging infectious diseases 2020;26:No page numbers.

We report the detection and decline over time of severe acute respiratory syndrome coronavirus 2 antibodies in infants born to women with coronavirus disease. Among 11 infants tested at birth, all had detectable IgG and 5 had detectable IgM. IgG titers with positive IgM declined more slowly than those without.

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1. **Does the human placenta express the canonical cell entry mediators for SARS-CoV-2?**  
   Pique-Regi R. Elife 2020;9:No page numbers.

The pandemic of coronavirus disease 2019 (COVID-19) caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has affected more than 10 million people, including pregnant women. To date, no consistent evidence for the vertical transmission of SARS-CoV-2 exists. The novel coronavirus canonically utilizes the angiotensin-converting enzyme 2 (ACE2) receptor and the serine protease TMPRSS2 for cell entry. Herein, building upon our previous single-cell study (Pique-Regi, 2019), another study, and new single-cell/nuclei RNA-sequencing data, we investigated the expression of ACE2 and TMPRSS2 throughout pregnancy in the placenta as well as in third-trimester chorioamniotic membranes. We report that co-transcription of ACE2 and TMPRSS2 is negligible in the placenta, thus not a likely path of vertical transmission for SARS-CoV-2. By contrast, receptors for Zika virus and cytomegalovirus, which cause congenital infections, are highly expressed by placental cell types. These data show that the placenta minimally expresses the canonical cell-entry mediators for SARS-CoV-2.

1. **Does the maternal-fetal transmission of SARS-CoV-2 occur during pregnancy?**  
   Elósegui J. H. Revista Clínica Española (English Edition) 2020;:No page numbers.

1. **Effect of coronavirus disease 2019 (COVID-19) on maternal, perinatal and neonatal outcome: systematic review**  
   Juan J. Ultrasound in obstetrics & gynecology : the official journal of the International Society of Ultrasound in Obstetrics and Gynecology 2020;56:15-27.

OBJECTIVE: To evaluate the effect of coronavirus disease 2019 (COVID-19) on maternal, perinatal and neonatal outcome by performing a systematic review of available published literature on pregnancies affected by COVID-19., METHODS: We performed a systematic review to evaluate the effect of COVID-19 on pregnancy, perinatal and neonatal outcome. We conducted a comprehensive literature search using PubMed, EMBASE, the Cochrane Library, China National Knowledge Infrastructure Database and Wan Fang Data up to and including 20 April 2020 (studies were identified through PubMed alert after that date). For the search strategy, combinations of the following keywords and medical subject heading (MeSH) terms were used: 'SARS-CoV-2', 'COVID-19', 'coronavirus disease 2019', 'pregnancy', 'gestation', 'maternal', 'mother', 'vertical transmission', 'maternal-fetal transmission', 'intrauterine transmission', 'neonate', 'infant' and 'delivery'. Eligibility criteria included laboratory-confirmed and/or clinically diagnosed COVID-19, patient being pregnant on admission and availability of clinical characteristics, including at least one maternal, perinatal or neonatal outcome. Exclusion criteria were non-peer-reviewed or unpublished reports, unspecified date and location of the study, suspicion of duplicate reporting and unreported maternal or perinatal outcomes. No language restrictions were applied., RESULTS: We identified a high number of relevant case reports and case series, but only 24 studies, including a total of 324 pregnant women with COVID-19, met the eligibility criteria and were included in the systematic review. These comprised nine case series (eight consecutive) and 15 case reports. A total of 20 pregnant patients with laboratory-confirmed COVID-19 were included in the case reports. In the combined data from the eight consecutive case series, including 211 (71.5%) cases of laboratory-confirmed and 84 (28.5%) of clinically diagnosed COVID-19, the maternal age ranged from 20 to 44 years and the gestational age on admission ranged from 5 to 41 weeks. The most common symptoms at presentation were fever, cough, dyspnea/shortness of breath, fatigue and myalgia. The rate of severe pneumonia reported amongst the case series ranged from 0% to 14%, with the majority of the cases requiring admission to the intensive care unit. Almost all cases from the case series had positive computed tomography chest findings. All six and 22 cases that had nucleic-acid testing in vaginal mucus and breast milk samples, respectively, were negative for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Only four cases of spontaneous miscarriage or termination were reported. In the consecutive case series, 219/295 women had delivered at the time of reporting and 78% of them had Cesarean section. The gestational age at delivery ranged from 28 to 41 weeks. Apgar scores at both 1 and 5 min ranged from 7 to 10. Only eight neonates had birth weight < 2500 g and nearly one-third of neonates were transferred to the neonatal intensive care unit. There was one case of neonatal asphyxia and death. In 155 neonates that had nucleic-acid testing in throat swab, all, except three cases, were negative for SARS-CoV-2. There were no cases of maternal death in the eight consecutive case series. Seven maternal deaths, four intrauterine fetal deaths (one with twin pregnancy) and two neonatal deaths (twin pregnancy) were reported in a non-consecutive case series of nine cases with severe COVID-19. In the case reports, two maternal deaths, one neonatal death and two cases of neonatal SARS-CoV-2 infection were reported., CONCLUSIONS: Despite the increasing number of published studies on COVID-19 in pregnancy, there are insufficient good-quality data to draw unbiased conclusions with regard to the severity of the disease or specific complications of COVID-19 in pregnant women, as well as vertical transmission, perinatal and neonatal complications. In order to answer specific questions in relation to the impact of COVID-19 on pregnant women and their fetuses, th ough meaningful good-quality research, we urge researchers and investigators to present complete outcome data and reference previously published cases in their publications, and to record such reporting when the data of a case are entered into one or several registries. © 2020 The Authors. Ultrasound in Obstetrics & Gynecology published by John Wiley & Sons Ltd on behalf of the International Society of Ultrasound in Obstetrics and Gynecology. Copyright © 2020 The Authors. Ultrasound in Obstetrics & Gynecology published by John Wiley & Sons Ltd on behalf of the International Society of Ultrasound in Obstetrics and Gynecology.

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1. **Effectiveness of social distancing strategies for protecting a community from a pandemic with a data- driven contact network based on census and real-world mobility data**  
   Anon. Covid-19 Ad hoc papers 2020;:No page numbers.

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1. **Effects of coronavirus disease 2019 (COVID-19) on maternal, perinatal and neonatal outcomes: a systematic review**  
   Juan J. Ultrasound Obstet Gynecol 2020;:No page numbers.

OBJECTIVE: To evaluate the effects of coronavirus disease 2019 (COVID-19) on maternal, perinatal and neonatal outcomes by performing a systematic review of available published literature on pregnancies affected by COVID-19. METHODS: We performed a systematic review to evaluate the effects of COVID-19 on pregnancy, perinatal and neonatal outcomes. We conducted a comprehensive literature search using PubMed, EMBASE, the Cochrane Library, China National Knowledge Infrastructure Database and Wan Fang Data until 20 April 2020 (studies were identified through PubMed alert after that date). For the research strategy, combinations of the following keywords and MeSH terms were used: SARS-CoV-2, COVID-19, coronavirus disease 2019, pregnancy, gestation, maternal, mothers, vertical transmission, maternal-fetal transmission, intrauterine transmission, neonates, infant, delivery. Eligibility criteria included laboratory-confirmed and/or clinically diagnosed COVID-19, patient being pregnant on admission and availability of clinical characteristics, including at least one maternal, perinatal or neonatal outcome. Exclusion criteria were non-peer-reviewed or unpublished reports, unspecified date and location of the study, suspicion of duplicate reporting, and unreported maternal or perinatal outcomes. No language restrictions were applied. RESULTS: We identified a high number of relevant case reports and case series, but only 24 studies, including a total of 324 pregnant women with COVID-19, met the eligibility criteria and were included in the systematic review. These comprised nine case series (eight consecutive) and 15 case reports. A total of 20 pregnant patients with laboratory-confirmed COVID-19 were included in the case reports. In the combined data from the eight consecutive case series, including 211 (71.5%) cases of laboratory-confirmed and 84 (28.5%) of clinically diagnosed COVID-19, the maternal age ranged from 20 to 44 years and the gestational age on admission ranged from 5 to 41 weeks. The most common symptoms at presentation were fever, cough, dyspnea/shortness of breath, fatigue and myalgia. The rate of severe pneumonia reported amongst the case series ranged from 0 to 14%, with the majority of the cases requiring admission to the intensive care unit. Almost all cases from the case series had positive computer tomography chest findings. All six and 22 cases that had nucleic-acid testing in vaginal mucus and breast milk samples, respectively, were negative for SARS-CoV-2. Only four cases of spontaneous miscarriage or abortion were reported. In the consecutive case series, 219/295 women had delivered at the time of reporting, and the majority of these had Cesarean section. The gestational age at delivery ranged from 28 to 41 weeks. Apgar scores at 1 and 5 min ranged from 7 to 10 and 7 to 10, respectively. Only eight neonates had birth weight <2500 g and nearly one-third of cases were transferred to the neonatal intensive care unit. There was one case each of neonatal asphyxia and neonatal death. In 155 neonates that had nucleic-acid testing in throat swab, all, except three cases, were negative for SARS-CoV-2. There were seven maternal deaths, four intrauterine fetal deaths (one with twin pregnancy) and two neonatal deaths (twin pregnancy) reported in a non-consecutive case series of nine cases with severe COVID-19. From the case reports, two maternal deaths, one neonatal death and two cases of neonatal SARS-CoV-2 infection were reported. CONCLUSIONS: Despite the increasing number of published studies on COVID-19 in pregnancy, there are insufficient good-quality data to draw unbiased conclusions with regard to the severity of the disease or specific complications of COVID-19 in pregnant women, as well as vertical transmission, perinatal and neonatal complications. In order to answer specific questions in relation to the impact of COVID-19 on pregnant women and their fetuses through meaningful good-quality research, we urge researchers and investigators to present complete outcome data and reference previously publishe cases in their publications, and to record such reporting when the data of a case are entered into a registry or several registries. This article is protected by copyright. All rights reserved.

1. **Effects of COVID-19 Infection during Pregnancy and Neonatal Prognosis: What Is the Evidence?**  
   Lopes de Sousa Á F. Int J Environ Res Public Health 2020;17:No page numbers.

BACKGROUND: This study's aims are to assess the current evidence presented in the literature regarding the potential risks of COVID-19 infection among pregnant women and consequent fetal transmission. METHODS: a systematic literature review assessing papers published in the most comprehensive databases in the field of health intended to answer the question, "What are the effects of COVID-19 infection during pregnancy, and what is the neonatal prognosis?" RESULTS: 49 papers published in 2020 were eligible, presenting low levels of evidence. A total of 755 pregnant women and 598 infants were assessed; more than half of pregnant women had C-sections (379/65%). Only 493 (82%) infants were tested for SARS-CoV-2, nine (2%) of whom tested positive. There is, however, no evidence of vertical transmission based on what has been assessed so far, considering there are knowledge gaps concerning the care provided during and after delivery, as well as a lack of suitable biological samples for testing SARS-CoV-2. CONCLUSIONS: We cannot rule out potential worsening of the clinical conditions of pregnant women infected with SARS-CoV-2, whether the infection is associated with comorbidities or not, due to the occurrence of respiratory disorders, cardiac rhythm disturbances, and acid-base imbalance, among others. We recommend relentless monitoring of all pregnant women in addition to testing them before delivery or the first contact with newborns.

1. **Effects of SARS-CoV-2 infection on pregnant women and their infants: A retrospective study in Wuhan, China**  
   Yang H. Archives of Pathology & Laboratory Medicine 2020;:No page numbers.

1. **Efficacy and safety of siltuximab vs. corticosteroids in hospitalized patients with COVID-19 pneumonia**  
   Fundacio Clinic per a. la Recerca B. Ictrp 2020;:No page numbers.

Main objective: To assess the efficacy of siltuximab vs corticosteroids in hospitalized patients with COVID19 pneumonia by evaluating the number of admissions in the unit intensive care (ICU). Inclusion criteria: 1. Age ≥ 18 years old. 2. Hospitalized patient (or documentation of a hospitalization plan if the patient is in an emergency department) with illness of more than 5 days of duration with evidence of pneumonia by chest radiography / tomography computed chest and meets at least one of the following requirements: a) Non-critical patient with pneumonia in radiological progression and / or b) Patient with progressive respiratory failure at the last 24-48 hours. 3. Laboratory confirmed SARS-CoV-2 infection (by PCR) or other commercialized analysis or public health in any sample collected 4 days before the randomization or COVID-19 criteria following the defined diagnostic criteria at that time in the center. 4. Patient with a maximum O2 support of 35% 5. Be willing and able to comply with the study related procedures / evaluations. 6. Women of childbearing potential \* should have a negative serum pregnancy test before enrollment in the study and must commit to using methods highly effective contraceptives (intrauterine device, bilateral tubal occlusion, vasectomized couple and sexual abstinence). 7. Written informed consent. In case of inability of the patient to sign the informed consent, a verbal informed consent from the legal representative or family witness (or failing this, an impartial witness outside the investigator team) will be obtained by phone. When circumstances so allow, participants should sign the consent form. The confirmation of the verbal informed consent will be documented in a document as evidence that verbal consent has been obtained.

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1. **Efficacy of different treatments in patients infected with COVID-19**  
   Fundacion para la investigacion Biomedica Hospital Universitario La P. Ictrp 2020;:No page numbers.

Main objective: Provide reliable estimates of the effects of these antiviral treatments on hospital mortality. Proporcionar estimaciones fiables sobre los efectos de estos tratamientos antivirales en la mortalidad hospitalaria. Inclusion criteria: • That you agree to participate in the study by signing the informed consent. • Men and women aged ≥18 years • Patients admitted with a diagnosis of severe pneumonia due to SARS-CoV-2. • Diagnosis of SARS-CoV-2 infection confirmed by PCR carried out ≤ 4 days prior to randomization. • Onset of symptoms ≤ 4 days. • Basal oxygen saturation ≤ 93%. • Men and women with reproductive capacity should agree to use highly effective contraceptive methods (diaphragm plus spermicide or male condom plus spermicide, oral contraceptive combined with a second method of contraceptive implant, injectable contraceptive, permanent intrauterine device, sexual abstinence, or vasectomy) during your participation in the study and within 30 days of the last visit. • In addition, women participating in the study with reproductive ability must have a negative pregnancy test at enrollment.

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1. **Emergency cesarean section on severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) confirmed patient**  
   Lee D. H. Korean journal of anesthesiology 2020;:No page numbers.

1. **Emerging coronaviruses: first SARS, second MERS and third SARS-CoV-2: epidemiological updates of COVID-19**  
   Halaji M. Le infezioni in medicina 2020;28:6-17.

Since December 2019, the emergence of the Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV-2) infection has been reported unexpectedly in Wuhan, China, with staggering infection speed across China and around the world. To date, seven known strains of HCoVs belonging to four genera (i.e., alpha?, beta?, gamma, and delta-CoV) have been recognized; the latest one has been identified as the SARS-CoV-2. Although the common transmission routes of SARS-CoV-2 is the respiratory tract, it seems that other routes such as the gastrointestinal tract may be effective for the entry of the virus in the body. Although there are no biological markers to predict the susceptibility of humans to COVID-19, several risk factors have been identified to predict the susceptibility of patients to COVID-19. Initial data revealed that males, pregnant women, elderly, and underlying conditions predispose patients to higher morbidity or mortality and also might be at risk for a severe infection of COVID-19. There is a greater need to better understand the mechanisms and risk factors of transmission routes. To date, despite the whole world effort to review various aspects of SARS-CoV-2, including epidemiology, clinical manifestations, diagnosis, and treatment options, there are still gaps in the knowledge of this disease and many issues remain unclear. Therefore, there is an urgent need for update data on SARS-CoV-2. Here, this study provide the current epidemiological status (transmission routes and risk of transmission, possible origins and source, mortality and morbidity risk, and geographical distribution) of the SARS-CoV-2 in the world in 2020.

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1. **Endemic and Emerging Arboviruses in Domestic Ruminants in East Asia**  
   Yanase T. Front Vet Sci 2020;7:168.

Epizootic congenital abnormalities caused by Akabane, Aino, and Chuzan viruses have damaged the reproduction of domestic ruminants in East Asia for many years. In the past, large outbreaks of febrile illness related to bovine ephemeral fever and Ibaraki viruses severely affected the cattle industry in that region. In recent years, vaccines against these viruses have reduced the occurrence of diseases, although the viruses are still circulating and have occasionally caused sporadic and small-scaled epidemics. Over a long-term monitoring period, many arboviruses other than the above-mentioned viruses have been isolated from cattle and Culicoides biting midges in Japan. Several novel arboviruses that may infect ruminants (e.g., mosquito- and tick-borne arboviruses) were recently reported in mainland China based on extensive surveillance. It is noteworthy that some are suspected of being associated with cattle diseases. Malformed calves exposed to an intrauterine infection with orthobunyaviruses (e.g., Peaton and Shamonda viruses) have been observed. Epizootic hemorrhagic disease virus serotype 6 caused a sudden outbreak of hemorrhagic disease in cattle in Japan. Unfortunately, the pathogenicity of many other viruses in ruminants has been uncertain, although these viruses potentially affect livestock production. As global transportation grows, the risk of an accidental incursion of arboviruses is likely to increase in previously non-endemic areas. Global warming will also certainly affect the distribution and active period of vectors, and thus the range of virus spreads will expand to higher-latitude regions. To prevent anticipated damages to the livestock industry, the monitoring system for arboviral circulation and incursion should be strengthened; moreover, the sharing of information and preventive strategies will be essential in East Asia.

1. **Epidemiology of COVID-19**  
   Bulut C. Turkish journal of medical sciences 2020;50:563-570.

It seems that coronaviruses take an important place in the 21th century history. Five of seven human coronavirus was isolated in this century. Unfortunately, last three of them entered our life with a fear of outbreak, pandemic or death. Last human coronavirus which emerged world from Wuhan China, SARS CoV-2 and its clinical expression, Coronavirus disease (COVID-19) recently taken a significant place in our daily practice. Initial reports showed that, its origin was bats. It transmitted human to human by droplet and contact routes, but some doubt about airborne, fecal or intrauterine transmission also should be removed. Its R0 value is 2.3 but it could be as high as 5.7. Its case fatality rate was 6.3, but it was different in different ages and counties, and it could be over 15%. According to early models total 10-12 weeks is required to control an outbreak in the community. While different countries show different daily case numbers, total number of case, case mortality rates or R0, it seems they show a similar epidemic curve. Every day we learn new data about the current outbreak. Since the outbreak is not over yet, every detail should be evaluated carefully and the updates should be followed closely to monitor the epidemiological properties of COVID-19. Copyright This work is licensed under a Creative Commons Attribution 4.0 International License.

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1. **Epidemiology, virology, and clinical features of severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2; Coronavirus Disease-19)**  
   Park S. E. Clinical and experimental pediatrics 2020;63:119.

1. **Erratum: Department of Error (The Lancet (2020) 395(10226) (809-815), (S0140673620303603), (10.1016/S0140-6736(20)30360-3))**  
   Anonymous The Lancet 2020;395:1038.

Chen H, Guo J, Wang C, et al. Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records. Lancet 2020; 395: 809-15-In table 1 of this Article, the AST value for patient 4 was 76 U/L. And in the figure the chest CT images and descriptions for patient 6 and patient 7 were out of order: the CT images and figure legend have been updated accordingly. These corrections have been made to the online version as of March 23, 2020.Copyright © 2020 Elsevier Ltd

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1. **ESC Guidance for the Diagnosis and Management of CV Disease during the COVID-19 Pandemic**  
   Anon. European Society of Cardiology 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=8018f848876ed06c8178ca21a2bd56e8)

1. **Establishment of an early warning model for maternal and child vertical transmission of COVID-19 infection**  
   Tongji Hospital H. Ictrp 2020;:No page numbers.

Study type: Observational study Study design: Sequential Inclusion criteria: All patients who meet one or two of the followings will be included in this study(pregnant women and newborns delivered):

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1. **Evaluation of Ultraviolet-C Light for Rapid Decontamination of Airport Security Bins in the Era of SARS-CoV-2**  
   Cadnum J. L. Pathog Immun 2020;:No page numbers.

Background: Contaminated surfaces are a potential source for spread of respiratory viruses including SARS-CoV-2. Ultraviolet-C (UV-C) light is effective against RNA and DNA viruses and could be useful for decontamination of high-touch fomites that are shared by multiple users. Methods: A modification of the American Society for Testing and Materials standard quantitative carrier disk test method (ASTM E-2197-11) was used to examine the effectiveness of UV-C light for rapid decontamination of plastic airport security bins inoculated at 3 sites with methicillin-resistant Staphylococcus aureus (MRSA) and bacteriophages MS2, PhiX174, and Phi6, an enveloped RNA virus used as a surrogate for coronaviruses. Reductions of 3 log10 on inoculated plastic bins were considered effective for decontamination. Results: UV-C light administered as 10-, 20-, or 30-second cycles in proximity to a plastic bin reduced contamination on each of the test sites, including vertical and horizontal surfaces. The 30-second cycle met criteria for decontamination of all 3 test sites for all the test organisms except bacteriophage MS2 which was reduced by greater than 2 log10 PFU at each site. Conclusions: UV-C light is an attractive technology for rapid decontamination of airport security bins. Further work is needed to evaluate the utility of UV-C light in real-world settings and to develop methods to provide automated movement of bins through a UV-C decontamination process.

1. **Evidence and possible mechanisms of rare maternal-fetal transmission of SARS-CoV-2**  
   Egloff C. Journal of clinical virology : the official publication of the Pan American Society for Clinical Virology 2020;128:104447.

While SARS-CoV-2 infection has spread rapidly worldwide, data remains scarce about the natural history of infection in pregnant women and the risk of mother-to-fetal transmission. Current data indicates that viral RNA levels in maternal blood are low and there is no evidence of placental infection with SARS-CoV-2. Published reports to date suggest that perinatal transmission of SARSCoV- 2 can occur but is rare. Among 179 newborns tested for SARS-CoV2 at birth from mothers with COVID-19, transmission was suspected in 8 cases, 5 with positive nasopharyngeal SARS-CoV-2 RT-PCR and 3 with SARS-CoV-2 IgM. However, these cases arise from maternal infection close to childbirth and there are no information about exposition during first or second trimester of pregnancy. Welldesigned prospective cohort studies with rigorous judgement criteria are needed to determine the incidence and risk factors for perinatal transmission of SARS-CoV-2. Copyright © 2020 Elsevier B.V. All rights reserved.

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1. **Evidence for and against vertical transmission for SARS-CoV-2 (COVID-19)**  
   Amouroux A. American journal of obstetrics and gynecology 2020;:No page numbers.

1. **Evidence for and against vertical transmission for severe acute respiratory syndrome coronavirus 2**  
   Audrey L. American Journal of Obstetrics and Gynecology 2020;223:91.e91-91.e94.

Evidence for and against vertical transmission for severe acute respiratory syndrome coronavirus 2. COVID-19 can severely affect pregnant women Furthermore, issues regarding vertical transmission of severe acute respiratory syndrome coronavirus 2 are emerging. In patients and neonates who are showing symptoms of coronavirus disease 2019, real-time polymerase chain reaction of nasal and throat swabs, sputum, and feces is performed to detect the presence of severe acute respiratory syndrome coronavirus 2. In addition, real-time polymerase chain reaction of vaginal swabs, amniotic fluid, placenta, cord blood, neonatal blood, or breast milk for the detection of severe acute respiratory syndrome coronavirus 2 did not show substantial results. Viremia was present in 1% of adult patients who were showing symptoms of coronavirus disease 2019. Here, we reviewed 12 articles published between Feb. 10, 2020, and April 4, 2020, that reported on 68 deliveries and 71 neonates with maternal infection in the third trimester of pregnancy. To determine whether infection occurred congenitally or perinatally, perinatal exposure, mode of delivery, and time interval from delivery to the diagnosis of neonatal infection were considered. Neonates with severe acute respiratory syndrome coronavirus 2 infection are usually asymptomatic. In 4 cases, a diagnostic test for severe acute respiratory syndrome coronavirus 2 infection was performed within 48 hours of life. Furthermore, detection rates of real-time polymerase chain reaction and the interpretation of immunoglobulin M and immunoglobulin G antibodies levels in cord and neonatal blood were discussed in relation with the immaturity of the fetal and neonatal immune system.Copyright © 2020 Elsevier Inc. All rights reserved.

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1. **Evidence of mother-to-newborn infection with COVID-19**  
   Sun M. British journal of anaesthesia 2020;:No page numbers.

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1. **Evidence summary for natural history of COVID-19 in children**  
   Anon. Health Information and Quality Authority 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=29410923d590e0a9d5648dbbb3c0109d)

1. **Evidence summary for placental transfer of antibodies**  
   Anon. Health Information and Quality Authority 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=c5802aeed7c2c38fbb47802095e0cda2)

1. **Experience of Clinical Management for Pregnant Women and Newborns with Novel Coronavirus Pneumonia in Tongji Hospital, China**  
   Wang S. S. Current medical science 2020;40:285-289.

Based on the New Diagnosis and Treatment Scheme for Novel Coronavirus Infected Pneumonia (Trial Edition 5), combined with our current clinical treatment experience, we recently proposed a revision of the first edition of "Guidance for maternal and fetal management during pneumonia epidemics of novel coronavirus infection in the Wuhan Tongji Hospital". This article focused on the issues of greatest concern of pregnant women including severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection diagnostic criteria, inspection precautions, drug treatment options, indications and methods of termination of pregnancy, postpartum fever, breastfeeding considerations, mode of mother-to-child transmission, neonatal isolation and advice on neonatal nursing, to provide valuable experience for better management of SARS-CoV-2 infection in pregnant women and newborns.

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1. **Expert consensus for managing pregnant women and neonates born to mothers with suspected or confirmed novel coronavirus (COVID-19) infection**  
   Chen D. International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics 2020;149:130-136.

OBJECTIVE: To provide clinical management guidelines for novel coronavirus (COVID-19) in pregnancy., METHODS: On February 5, 2020, a multidisciplinary teleconference comprising Chinese physicians and researchers was held and medical management strategies of COVID-19 infection in pregnancy were discussed., RESULTS: Ten key recommendations were provided for the management of COVID-19 infections in pregnancy., CONCLUSION: Currently, there is no clear evidence regarding optimal delivery timing, the safety of vaginal delivery, or whether cesarean delivery prevents vertical transmission at the time of delivery; therefore, route of delivery and delivery timing should be individualized based on obstetrical indications and maternal-fetal status. Copyright © 2020 International Federation of Gynecology and Obstetrics.

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1. **Extrapulmonary manifestations of COVID-19: Radiologic and clinical overview**  
   Behzad S. Clinical Imaging 2020;66:35-41.

COVID-19 is principally a respiratory illness and pulmonary manifestations constitute main presentations of the disease. According to the reported studies, SARS-CoV-2 infection is not limited to the respiratory system and other organs can be also affected. Renal dysfunction, gastrointestinal complications, liver dysfunction, cardiac manifestations, mediastinal findings, neurological abnormalities, and hematological manifestations are among the reported extrapulmonary features. Considering the broad spectrum of clinical manifestations and the increasing worldwide burden of the disease, there is an urgent need to rapidly scale up the diagnostic capacity to detect COVID-19 and its complications. This paper focuses on the most common extrapulmonary manifestations in patients with COVID-19 pneumonia. Further studies are needed to elaborate and confirm the causative relationship between SARS-CoV-2 and the reported extrapulmonary manifestations of COVID-19.Copyright © 2020 Elsevier Inc.

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1. **Factors preventing materno-fetal transmission of SARS-CoV-2**  
   Celik O. Placenta 2020;97:1-5.

Although many pregnant women have been infected by coronavirus, the presence of intrauterine vertical transmission has not been conclusively reported yet. What prevents this highly contagious virus from reaching the fetus? Is it only the presence of a strong placental barrier, or is it the natural absence of the some receptor that the viruses use for transmission? We, therefore, need to comprehensively understand the mechanism of action of the mammalian epithelial barriers located in two different organs with functional similarity. The barriers selected as potential targets by SARS-CoV-2 are the alveolo-capillary barrier (ACB), and the syncytio-capillary barrier (SCB). Caveolae are omega-shaped structures located on the cell membrane. They consist of caveolin-1 protein (Cav-1) and are involved in the internalisation of some viruses. By activating leukocytes and nuclear factor-kappaB, Cav-1 initiates inflammatory reactions. The presence of more than one Cav-1 binding sites on coronavirus is an important finding supporting the possible relationship between SARS-CoV-2-mediated lung injury. While the ACB cells express Cav-1 there is no caveolin expression in syncytiotrophoblasts. In this short review, we will try to explain our hypothesis that the lack of caveolin expression in the SCB is one of the most important physiological mechanisms that prevents vertical transmission of SARS-CoV-2. Since the physiological Cav-1 deficiency appears to prevent acute cell damage treatment algorithms could potentially be developed to block this pathway in the non-pregnant population affected by SARS-CoV-2. Copyright © 2020 Elsevier Ltd. All rights reserved.

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1. **Fetal Diagnosis and Therapy during the COVID-19 Pandemic: Guidance on Behalf of the International Fetal Medicine and Surgery Society**  
   Deprest J. Fetal diagnosis and therapy 2020;:1-10.

The COVID-19 pandemic has stressed patients and healthcare givers alike and challenged our practice of antenatal care, including fetal diagnosis and therapy. This document aims to review relevant recent information to allow us to optimize prenatal care delivery. We discuss potential modifications to obstetric management and fetal procedures in SARS-CoV2-negative and SARS-CoV2-positive patients with fetal anomalies or disorders. Most fetal therapies are time sensitive and cannot be delayed. If personnel and resources are available, we should continue to offer procedures of proven benefit, 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. Knowing a mother's preoperative SARS-CoV-2 status would enable us to avoid or defer certain procedures while she is contagious and to protect health care workers appropriately. Some fetal conditions may alternatively be managed neonatally. Counseling regarding fetal interventions which have a possibility of additional intra- or postoperative morbidity must be performed in the context of local resource availability. Procedures of unproven benefit should not be offered. We encourage participation in registries and trials that may help us to understand the impact of COVID-19 on pregnant women, their fetuses, and neonates. Copyright © 2020 S. Karger AG, Basel.

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1. **Fetal Transient Skin Edema in Two Pregnant Women With Coronavirus Disease 2019 (COVID-19)**  
   Garcia-Manau P. Obstet Gynecol 2020;:No page numbers.

BACKGROUND: The risk of vertical transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection remains unknown. Positive reverse-transcription polymerase chain reaction (RT-PCR) test results for SARS-CoV-2 infection in neonates and placental tissue have been reported, and immunoglobulin M antibodies have been detected in neonates born to mothers with infection. CASES: The first case is a woman at 22 3/7 weeks of gestation with coronavirus disease 2019 (COVID-19) who was admitted to the intensive care unit. In the second case, the patient remained at home with mild symptoms, starting at 20 weeks of gestation. In both cases, fetal skin edema was observed on ultrasound examination while maternal SARS-COV-2 RT-PCR test results were positive and resolved when maternal SARS-COV-2 RT-PCR test results became negative. The RT-PCR test result for SARS-CoV-2 in amniotic fluid was negative in both cases. The two pregnancies are ongoing and uneventful. CONCLUSION: Transient fetal skin edema noted in these two patients with COVID-19 in the second trimester may represent results of fetal infection or altered fetal physiology due to maternal disease or may be unrelated to the maternal illness.

1. **Generation of Complete Multi-Cell Type Lung Organoids From Human Embryonic and Patient-Specific Induced Pluripotent Stem Cells for Infectious Disease Modeling and Therapeutics Validation**  
   Leibel S. L. Curr Protoc Stem Cell Biol 2020;54:e118.

The normal development of the pulmonary system is critical to transitioning from placental-dependent fetal life to alveolar-dependent newborn life. Human lung development and disease have been difficult to study due to the lack of an in vitro model system containing cells from the large airways and distal alveolus. This article describes a system that allows human embryonic stem cells (hESCs) and induced pluripotent stem cells (hiPSCs) to differentiate and form three-dimensional (3D) structures that emulate the development, cytoarchitecture, and function of the lung ("organoids"), containing epithelial and mesenchymal cell populations, and including the production of surfactant and presence of ciliated cells. The organoids can also be invested with mesoderm derivatives, differentiated from the same human pluripotent stem cells, such as alveolar macrophages and vasculature. Such lung organoids may be used to study the impact of environmental modifiers and perturbagens (toxins, microbial or viral pathogens, alterations in microbiome) or the efficacy and safety of drugs, biologics, and gene transfer. © 2020 Wiley Periodicals LLC. Basic Protocol: hESC/hiPSC dissection, definitive endoderm formation, and lung progenitor cell induction.

1. **Guidance for maternal medicine in the evolving coronavirus (COVID-19) pandemic**  
   Anon. Royal College of Obstetricians and Gynaecologists 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=be2aa95d3b3204f3d0ad66a5d2425253)

1. **Guidance on breastfeeding during the Covid-19 pandemic**  
   Calil V. Rev Assoc Med Bras (1992) 2020;66:541-546.

OBJECTIVE: These recommendations aim to provide guidance on breastfeeding for mothers with suspected or confirmed Covid-19. METHODS: We performed a review of the recent medical literature on breastfeeding mothers with suspected or confirmed Covid-19, focusing on the neonatal period. RESULTS: We analyzed 20 recent publications on breastfeeding, Covid-19, and its transmission through breastmilk. We presented possible options for breastfeeding and their consequences for the mother and the child. CONCLUSION: All maternal decisions in relation to breastfeeding are justifiable since the infection by Covid-19 is still poorly known. However, puerperal women and their families must be very well informed to make a conscious choice based on the information available in the literature so far.

1. **Guidelines for pregnant women with suspected SARS-CoV-2 infection**  
   Favre G. The Lancet Infectious Diseases 2020;20:652-653.

1. **Hand cleaning with ash for reducing the spread of viral and bacterial infections: a rapid review**  
   Anon. Cochrane 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=64f3de3c78583aeac49163a3ae1a8d81)

1. **Home birth during the COVID-19 pandemic**  
   Anon. Ontario Midwives 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=9adf000db397229ea4aff9be2b441ae7)

1. **Homology analysis of 51 penicillin-intermediate Streptococcus pneumoniae isolates from Wenzhou City, China**  
   Zhang J. J Int Med Res 2020;48:300060520919061.

OBJECTIVE: To investigate drug resistance features and homology among penicillin-intermediate Streptococcus pneumoniae isolates from Wenzhou City, China. METHODS: Fifty-one penicillin-intermediate S. pneumoniae isolates were obtained from respiratory samples of infants and children hospitalized with lung infections. An antimicrobial susceptibility test was used to assess drug resistance. Polymerase chain reaction and agarose gel electrophoresis were used to identify S. pneumoniae isolates and pulsed-field gel electrophoresis (PFGE) was used to analyze molecular subtypes. Hierarchical cluster analysis of PFGE fingerprints was used to compare genetic diversity and relatedness of S. pneumoniae isolates. The Quellung test was used for serotyping. RESULTS: Fifty-one penicillin-intermediate S. pneumoniae isolates showed evidence of multi-drug resistance and polyclonal origins. The isolates were classified into 25 subtypes through hierarchical cluster analysis of PFGE fingerprints. Three of these subtypes formed a supertype (15/51, 16/51 and 8/51 isolates), while the remaining subtypes occurred sporadically (12/51 isolates). CONCLUSIONS: Transmission of penicillin-intermediate S. pneumoniae is mostly vertical and to a lesser extent horizontal. Effective prevention strategies, including respiratory tract management and contact isolation, are essential to control nosocomial S. pneumoniae infection. Once susceptibility is confirmed, vancomycin, high-dose penicillin or third-generation cephalosporins (cefotaxime and ceftriaxone) may be used to treat penicillin-intermediate S. pneumoniae.

1. **How to reduce the potential risk of vertical transmission of SARS-CoV-2 during vaginal delivery?**  
   Carosso A. European journal of obstetrics, gynecology, and reproductive biology 2020;250:246-249.

The risk of vertical transmission during vaginal delivery in COVID-19 pregnant patients is currently a topic of debate. Obstetric norms on vaginal birth assistance to reduce the potential risk of perinatal infection should be promoted by ensuring that the risk of contamination from maternal anus and faecal material is reduced during vaginal delivery. Copyright © 2020 Elsevier B.V. All rights reserved.

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1. **Hydroxychloroquine Azithromycin COVID-19 Pregnancy Trial**  
   Hospital St. Joseph M. F. ClinicalTrials.gov 2020;:No page numbers.

Up to date, and since December 31st 2019, 2 520 522 cases of COVID-19 including 176 786 deaths, have been reported worldwide. Global efforts are made to save lives and decrease morbidity by evaluating therapeutic strategies. Pregnant women with COVID-19 are at high-risk of severe complications and mortality from COVID-19 infection, due to physiologic and immune changes occurring during pregnancy. These risks include development of maternal hypoxemic respiratory failure due to severe pneumonia, hospitalization in intensive care, death; but also, fetal morbidity-mortality with chronic and/or acute fetal distress, intrauterine growth retardation, intrauterine death and neonatal morbidity, mainly due to induced preterm birth and maternal-fetal transmission. Knowledge of these epidemiologic facts on SARS-Cov-2 infection in pregnant women is currently limited to small case-series. No drug has demonstrated solid evidence in treating SARS-Cov-2 virus. Nevertheless, in vitro studies and tests in COVID-19 positive patients treated with hydroxychloroquine and azithromycin merit further evaluation. Pregnant women are systematically excluded from drug trials, and treatment options for this high-risk population remain untested. The aim of our study is to screen pregnant women presenting minor symptoms, for COVID-19 and to evaluate efficacy of hydroxychloroquine-azithromycin treatment in preventing aggravation of symptoms with development of hypoxemic respiratory failure and complications of pregnancy.

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1. **Hydroxychloroquine efficacy and safety in preventing SARS-CoV-2 infection and COVID-19 disease severity during pregnancy (COVID-Preg): a structured summary of a study protocol for a randomised placebo controlled trial**  
   González R. Trials 2020;21:607.

OBJECTIVES: The primary objectives of the study are: 1. To assess the effect of hydroxychloroquine (HCQ) in reducing SARS-CoV-2 viral shedding by PCR in infected pregnant women with mild symptoms. 2. To assess the efficacy of HCQ to prevent SARS-CoV-2 infection in pregnant women in contact with an infected or suspected case. 3. To evaluate the effect of HCQ in preventing the development of the COVID-19 disease in asymptomatic SARS-CoV-2-infected pregnant women. The secondary objectives are: 1. To determine the effect of HCQ on the clinical course and duration of the COVID-19 disease in SARS-CoV-2-infected pregnant women. 2. To determine the impact of HCQ on the risk of hospitalization and mortality of SARS-CoV-2-infected pregnant women. 3. To assess the safety and tolerability of HCQ in pregnant women. 4. To describe the clinical presentation of SARS-CoV-2 infection during pregnancy. 5. To describe the effects of maternal SARS-CoV-2 infection on pregnancy and perinatal outcomes by treatment group. 6. To determine the risk of vertical transmission (intra-utero and intra-partum) of SARS-CoV-2. TRIAL DESIGN: Randomized double-blind placebo-controlled two-arm multicentre clinical trial to evaluate the safety and efficacy of HCQ to prevent and/or minimize SARS-CoV-2 infection during pregnancy. Participants will be randomized to receive a 14-day oral treatment course of HCQ or placebo, ratio 1:1. PARTICIPANTS: Study population: pregnant women undergoing routine prenatal follow up or attending emergency units at the participating hospitals who report either symptoms/signs suggestive of COVID-19 disease or close contact with a suspected or confirmed COVID-19 case. Inclusion criteria Women will be invited to participate in the trial and sign an informed consent if they meet the following inclusion criteria. • Presenting with fever (≥37.5°C) and/or one mild symptom suggestive of COVID-19 disease (cough, dyspnoea, chills, odynophagia, diarrhoea, muscle pain, anosmia, dysgeusia, headache) OR being contact\* of a SARS-CoV-2 confirmed or suspected case in the past 14 days • More than 12 weeks of gestation (dated by ultrasonography) • Agreement to deliver in the study hospitals Exclusion criteria • Known hypersensitivity to HCQ or other 4-amonoquinoline compounds • History of retinopathy of any aetiology • Concomitant use of digoxin, cyclosporine, cimetidine • Known liver disease • Clinical history of cardiac pathology including known long QT syndrome • Unable to cooperate with the requirements of the study • Participating in other intervention studies • Delivery onset (characterized by painful uterine contractions and variable changes of the cervix, including some degree of effacement and slower progression of dilatation up to 5 cm for first and subsequent labours) The study participants will be stratified by clinical presentation and SARS-CoV-2 PCR results. Assignment of participants to study groups will be as follows: • SARS-CoV-2-PCR confirmed, infected pregnant women: a. symptomatic (n=100) b. asymptomatic (n=100) • SARS-CoV-2 PCR negative pregnant women in contact\* with a SARS-CoV-2-infected confirmed or suspected case (n=514). \*The ECDC definition of close contact will be followed. The trial will be conducted in five hospitals in Spain: Hospital Clínic of Barcelona, Hospital Sant Joan de Déu and Hospital de la Santa Creu i Sant Pau, in Barcelona, and HM Puerta del Sur and Hospital Universitario de Torrejón, in Madrid. INTERVENTION AND COMPARATOR: Participants will be randomized to HCQ (400 mg/day for three days, followed by 200 mg/day for 11 days) or placebo (2 tablets for three days, followed by one tablet for 11 days). MAIN OUTCOMES: The primary outcome is the number of PCR-confirmed infected pregnant women assessed from collected nasopharyngeal and oropharyngeal swabs at day 21 after treatment start (one week after treatment is completed). RANDOMISATION: Allocation of participants to study arms will be done centrally by the trial's Sponsor (the Barcelona Institute for Global Health, ISGlob l) by block randomization. This method will ensure balanced allocation to both arms. The electronic CRF will automatically assign a study number to each participant, depending on her study group and recruitment site. Each number will be related to a treatment number, which assigns them to one of the study arms. BLINDING (MASKING): Participants, caregivers, investigators and those assessing the outcomes will be blinded to group assignment. Study tablets (HCQ and placebo) will be identically packaged in small opaque bottles. NUMBERS TO BE RANDOMISED (SAMPLE SIZE): This study requires 200 SARS-CoV-2 infected and 514 contact pregnant women, randomised 1:1 with 100 and 227 respectively in each study arm. TRIAL STATUS: Protocol version 1.0, from May 8(th), 2020. Recruitment is ongoing (first patient recruited the 19(th) May 2020 and recruitment end anticipated by December 2020). TRIAL REGISTRATION: EudraCT number: 2020-001587-29, registered 2 April 2020. Clinicaltrials.gov identifier: NCT04410562 , retrospectively registered 1 June 2020. FULL PROTOCOL: The full protocol is attached as an additional file, accessible from the Trials website (Additional file 1). In the interest in expediting dissemination of this material, the familiar formatting has been eliminated; this Letter serves as a summary of the key elements of the full protocol.

1. **Immunization with human cytomegalovirus core fusion machinery and accessory envelope proteins elicit strong synergistic neutralizing activities**  
   Cui X. Vaccines 2020;8:179.

Human cytomegalovirus (HCMV) core fusion machinery proteins gB and gH/gL, and accessory proteins UL128/UL130/UL131A, are the key envelope proteins that mediate HCMV entry into and infection of host cells. To determine whether these HCMV envelope proteins could elicit neutralizing activities synergistically, we immunized rabbits with individual or various combinations of these proteins adsorbed to aluminum hydroxide mixed with CpG-ODN. We then analyzed serum neutralizing activities with multiple HCMV laboratory strains and clinical isolates. HCMV trimeric gB and gH/gL elicited high and moderate titers of HCMV neutralizing activity, respectively. HCMV gB in combination with gH/gL elicited up to 17-fold higher HCMV neutralizing activities compared to the sum of neutralizing activity elicited by the individual proteins analyzed with both fibroblasts and epithelial cells. HCMV gB+gH/gL+UL128/UL130/UL131A in combination increased the neutralizing activity up to 32-fold compared to the sum of neutralizing activities elicited by the individual proteins analyzed with epithelial cells. Adding UL128/UL130/UL131A to gB and gH/gL combination did not increase further the HCMV neutralizing activity analyzed with fibroblasts. These data suggest that the combination of HCMV core fusion machinery envelope proteins gB+gH/gL or the combination of gB and pentameric complex could be ideal vaccine candidates that would induce optimal immune responses against HCMV infection.Copyright © 2020 by the authors. Licensee MDPI, Basel, Switzerland.

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1. **Impact of COVID-19 as a vertical infection in late pregnancy**  
   Leung J. S. M. Hong Kong medical journal = Xianggang yi xue za zhi 2020;26:271-272.

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1. **Impact of COVID-19 infection on pregnancy outcomes and the risk of maternal-to-neonatal intrapartum transmission of COVID-19 during natural birth**  
   Khan S. Infection Control and Hospital Epidemiology 2020;41:748-750.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=b2267cce505ad60d026ceacff5cbe012)

1. **Impact of SARS-CoV-2 Infection During Pregnancy on Newborns and Young Children**  
   Centre Hospitalier Universitaire Saint P. ClinicalTrials.gov 2020;:No page numbers.

This study aim is to assess impact of COVID-19 infection during pregnancy on outcome of pregnancy, and on developement of the child in early life.

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1. **Improving the quality of care in pregnancy and childbirth with coronavirus (COVID-19): a systematic review**  
   Abdollahpour S. The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians 2020;:1-9.

In the context of serious coronavirus epidemic, it is critical that pregnant women not be ignored potentially life-saving interventions. So, this study was designed to improve the quality of care by health providers through what they need to know about coronavirus during pregnancy and childbirth. We conducted a systematic review of electronic databases was performed for published in English, before 25 March 2020. Finally, 29 papers which had covered the topic more appropriately were included in the study. The results of the systematic review of the existing literature are presented in the following nine sections: Symptoms of the COVID-19 in pregnancy, Pregnancy management, Delivery Management, Mode of delivery, Recommendations for health care provider in delivery, Neonatal outcomes, Neonatal care, Vertical Transmission, Breastfeeding. In conclusion, improving quality of care in maternal health, as well as educating, training, and supporting healthcare providers in infection management to be prioritized. Sharing data can help to countries that to prevent maternal and neonatal morbidity associated with the COVID-19.

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1. **IN− UTERO MOTHER− TO− CHILD SARS− CoV− 2 TRANSMISSION: viral detection and fetal immune response**  
   Fenizia C. medRxiv 2020;:No page numbers.

1. **Incidence of SARS-CoV-2 vertical transmission: a meta-analysis**  
   Goh X. L. Archives of disease in childhood. Fetal and neonatal edition 2020;:No page numbers.

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1. **Infants Born to Mothers With a New Coronavirus (COVID-19)**  
   Chen Y. Frontiers in pediatrics 2020;8:104.

A novel viral respiratory disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), is responsible for an epidemic of the coronavirus disease 2019 (COVID-19) in cases in China and worldwide. Four full-term, singleton infants were born to pregnant women who tested positive for COVID-19 in the city of Wuhan, the capital of Hubei province, China, where the disease was first identified. Of the three infants, for who consent to be diagnostically tested was provided, none tested positive for the virus. None of the infants developed serious clinical symptoms such as fever, cough, diarrhea, or abnormal radiologic or hematologic evidence, and all four infants were alive at the time of hospital discharge. Two infants had rashes of unknown etiology at birth, and one had facial ulcerations. One infant had tachypnea and was supported by non-invasive mechanical ventilation for 3 days. One had rashes at birth but was discharged without parental consent for a diagnostic test. This case report describes the clinical course of four live born infants, born to pregnant women with the COVID-19 infection. Copyright © 2020 Chen, Peng, Wang, Zhao, Zeng, Gao and Liu.

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1. **Infection with SARS-CoV-2 in pregnancy. Information and proposed care. CNGOF**  
   Peyronnet V. Gynecologie, Obstetrique, Fertilite & Senologie 2020;:No page numbers.

1. **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**  
   Schwartz D. A. Archives of pathology & laboratory medicine 2020;:No page numbers.

SARS-CoV-2, the agent of COVID-19, is similar to two other coronaviruses, SARS-CoV and MERS-CoV, in causing life-threatening maternal respiratory infections and systemic complications. Because of global concern for potential intrauterine transmission of SARS-CoV-2 from pregnant women to their infants, this report analyzes the effects on pregnancy of infections caused by SARS-CoV-2 and other respiratory RNA viruses, and examines the frequency of maternal-fetal transmission with SARS-CoV-2, severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (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. Parainfluenza virus and human metapneumovirus can produce symptomatic maternal infections but do not cause intrauterine fetal infection. In summary, it appears that the absence thus far of maternal-fetal transmission of the SARS-CoV-2 virus during the COVID-19 pandemic 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. This observation has important consequences for pregnant women as it appears that if intrauterine transmission of SARSCoV-2 does eventually occur, it will be a rare event. Potential mechanisms of fetal protection from maternal viral infections are also discussed.

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1. **Intrauterine Transmission of Sars-Cov-2 Infection in a Preterm Infant**  
   Sisman J. The Pediatric Infectious Disease Journal 2020;:No page numbers.

1. **Intrauterine vertical transmission of SARS-CoV-2: what we know so far**  
   Wang C. Ultrasound in obstetrics & gynecology : the official journal of the International Society of Ultrasound in Obstetrics and Gynecology 2020;55:724-725.

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1. **Is SARS-CoV-2 Vertically Transmitted?**  
   Leal C. Frontiers in Pediatrics 2020;8:No page numbers.

1. **Is SARS-CoV-2 Vertically Transmitted?**  
   Simoes E. Silva A. C. Frontiers in pediatrics 2020;8:276.

At the end of 2019, in Wuhan (China), the onset of a disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was observed. The disease, named COVID-19, has a wide spectrum of clinical presentations, ranging from asymptomatic or mild to critical, and for some patients the disease is even fatal. Apparently, being a child or being pregnant does not represent an additional risk for adverse outcomes. The purpose of this mini-review was to investigate what is in the scientific literature, so far, in regard to vertical transmission of SARS-CoV-2. Data were obtained independently by the two authors, who carried out a systematic search in the PubMed, Embase, LILACS, Cochrane, Scopus and SciELO databases using the Medical Subject Heading terms "coronavirus," "COVID-19," and "vertical transmission." Few studies about the vertical transmission of SARS-CoV-2 are found in the literature. In all case reports and case series, the mothers' infection occurred in the third trimester of pregnancy, there were no maternal deaths, and most neonates had a favorable clinical course. The virus was not detected in the neonate nasopharyngeal swab samples at birth, in the placenta, in the umbilical cord, in the amniotic fluid, in the breast milk or in the maternal vaginal swab samples in any of these articles. Only three papers reported neonatal SARS-CoV-2 infection, but there is a bias that positive pharyngeal swab samples were collected at 36 h and on the 2nd, 4th, and 17th days of life. The possibility of intrauterine infection has been based mainly on the detection of IgM and IL-6 in the neonates' serum. In conclusion, to date, no convincing evidence has been found for vertical transmission of SARS-CoV-2. Copyright © 2020 Simoes e Silva and Leal.

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1. **Is there evidence of intra-uterine vertical transmission potential of COVID-19 infection in samples tested by quantitative RT-PCR?**  
   Cheruiyot I. European journal of obstetrics, gynecology, and reproductive biology 2020;249:100-101.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=15ca96bf0f204c216d1e9d64f823fb4d)

1. **ISIDOG recommendations concerning COVID-19 and pregnancy**  
   Donders F. Diagnostics 2020;10:243.

Providing guidelines to health care workers during a period of rapidly evolving viral pandemic infections is not an easy task, but it is extremely necessary in order to coordinate appropriate action so that all patients will get the best possible care given the circumstances they are in. With these International Society of Infectious Disease in Obstetrics and Gynecology (ISIDOG) guidelines we aim to provide detailed information on how to diagnose and manage pregnant women living in a pandemic of COVID-19. Pregnant women need to be considered as a high-risk population for COVID-19 infection, and if suspected or proven to be infected with the virus, they require special care in order to improve their survival rate and the well-being of their babies. Both protection of healthcare workers in such specific care situations and maximal protection of mother and child are envisioned.Copyright © 2020 by the authors. Licensee MDPI, Basel, Switzerland.

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1. **Isotretinoin in Treatment of COVID-19**  
   Tanta U. ClinicalTrials.gov 2020;:No page numbers.

The COVID-19 pandemic caused by SARS-COV-2 has infected over 2,000,000 people causing over 150,000 deaths. A key host cellular protein required for the virus entry is angiotensin-converting enzyme 2 (ACE2) whose expression has been demonstrated in many tissues including alveolar epithelial type II cells in lungs, oral mucosa and intestine, heart, kidney, endothelium and skin. ACE2-expressing cells can act as home cells and are prone to SARS-CoV-2 infection as ACE2 receptor facilitates cellular viral entry and replication. (1) Fang et al. has suggested that patients with hypertension and diabetes mellitus may be at higher risk of SARS-CoV-2 infection, as these patients are often treated with ACE inhibitors (ACEIs) or angiotensin II type-I receptor blockers (ARBs), which have been previously suggested to increase ACE2 expression. (2) In another study by Sinha et al who analyzed a publicly available Connectivity Map (CMAP) dataset of pre/post transcriptomic profiles for drug treatment in cell lines for over 20,000 small molecules, isotretinoin was the strongest down-regulator of ACE 2 receptors. On the other hand, they found 6 drugs in CMAP that are currently being investigated in clinical trials for treating COVID-19 (chloroquine, thalidomide, methylprednisolone, losartan, lopinavir and ritonavir, from clinicaltrials.gov), none of which was found to significantly alter ACE2 expression (P>0.1) (3) Moreover, Wu et al, demonstrated that isotretinoin is a Potential papain like protease (PLpro) inhibitors which is a protein encoded by SARS-CoV-2 genes and considered one of the proteins that should be targeted in COVID-19 treatment by performing target-based virtual ligand screening. (4) In addition, isotretinoin was reported to increase CD4 counts and markedly decrease viremia in HIV positive patients suffering from acne vulgaris. (5) Currently, a study is running to evaluate the effect of isotretinoin on immune activation among HIV-1 infected subjects with incomplete CD4+ T cell recovery. (6) From this point, we can suggest that patient taking isotretinoin therapy may be immune against SARS-COV-2 and it can also have a therapeutic effect by prevention of further progression of the virus. Several potential mechanisms of action of Chloroquine/Hydroxychloroquine against SARS-CoV-2 have been postulated and they are actually used in treatment regimens for COVID-19.(7) It was reported that chloroquine increase the blood level of isotretinoin, so lower doses is required when combined. We assume to test the efficacy of isotretinoin in treatment of COVID-19 versus combined therapy with the standard treatment of COVID-19.

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1. **Lack of maternal-fetal SARS-CoV-2 transmission**  
   Stower H. Nature Medicine 2020;26:312.

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1. **Lack of Vertical Transmission of Severe Acute Respiratory Syndrome Coronavirus 2, China**  
   Li Y. Emerging infectious diseases 2020;26:1335-1336.

A woman with coronavirus disease in her 35th week of pregnancy delivered an infant by cesarean section in a negative-pressure operating room. The infant was negative for severe acute respiratory coronavirus 2. This case suggests that mother-to-child transmission is unlikely for this virus.

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1. **Lessons Learned so Far from the Pandemic: A Review on Pregnants and Neonates with COVID-19**  
   Marim F. The Eurasian journal of medicine 2020;52:202-210.

There are concerns regarding the risk and the course of COVID-19 in pregnancy and in the neonates. In this review, we aimed to present the current understanding of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection during pregnancy and neonatal periods considering diagnosis, treatment, prognosis, and prevention. Few studies on pregnant women with COVID-19 have been conducted between December 2019 and April 2020. The majority of patients applied in the third trimester and presented with fever and cough. Ground-glass opacities and consolidation on computed tomography were reported to be common. COVID-19 was proposed to have a milder course than SARS and the Middle East respiratory syndrome coronavirus in pregnant women. Hydroxychloroquine and antiproteases (lopinavir/ritonavir) were reported to be safe; however, therapeutic efficacy and safety of remdesivir still lack evidence. As ribavirin and favipiravir have teratogenic effects, there are some debates on the use of ribavirin in severe cases. There is still no clear evidence of vertical transmission of SARS-CoV-2 during delivery. Occupational safety issues of pregnant healthcare workers on the frontline should be considered as their risk to develop severe pneumonia is higher because of altered maternal immune response. Knowledge about neonatal outcomes of COVID-19 was based on studies of the last trimester of pregnancy. There is much to be learnt about COVID-19 in pregnant women and in the neonates, especially concerning prognosis- and treatment-related issues. ©Copyright 2020 by the Ataturk University School of Medicine - Available online at www.eurasianjmed.com.

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1. **Lung ultrasound and computed tomographic findings in pregnant woman with COVID-19**  
   Kalafat E. Ultrasound in obstetrics & gynecology : the official journal of the International Society of Ultrasound in Obstetrics and Gynecology 2020;55:835-837.

Imaging modalities play a crucial role in the management of suspected COVID-19 patients. Before reverse transcription polymerase chain reaction (RT-PCR) test results are positive, 60-93% of patients have positive chest computed tomographic (CT) findings consistent with COVID-19. We report a case of positive lung ultrasound findings consistent with COVID-19 in a woman with an initially negative RT-PCR result. The lung ultrasound-imaging findings were present between the negative and subsequent positive RT-PCR tests and correlated with CT findings. The point-of-care lung-ultrasound examination was easy to perform and, as such, could play an important role in the triage of women with suspected COVID-19. The 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 this virus in pregnant women. Copyright © 2020 ISUOG. Published by John Wiley & Sons Ltd. Copyright © 2020 ISUOG. Published by John Wiley & Sons Ltd.

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1. **Lung Ultrasound in Children with COVID-19: Preliminary Findings**  
   Musolino A. M. Ultrasound in medicine & biology 2020;46:2094-2098.

Recent evidence indicates the usefulness of lung ultrasound (LUS) in detecting coronavirus disease 19 (COVID-19) pneumonia. However, no data are available on the use of LUS in children with COVID-19 pneumonia. In this report, we describe LUS features of 10 consecutively admitted children with COVID-19 in two tertiary-level pediatric hospitals in Rome. LUS revealed signs of lung involvement during COVID-19 infection. In particular, vertical artifacts (70%), pleural irregularities (60%), areas of white lung (10%) and subpleural consolidations (10%) were the main findings in patients with COVID-19. No cases of pleural effusions were found. According to our experience, the routine use of LUS in the evaluation of children with suspected or confirmed COVID-19, when performed by clinicians with documented experience in LUS, was useful in diagnosing and monitoring pediatric COVID-19 pneumonia, reducing unnecessary radiation/sedation in children and exposure of health care workers to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Copyright © 2020. Published by Elsevier Inc.

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1. **Management of Infants Born to Mothers with COVID-19**  
   Anon. American Academy of Pediatrics 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=9877037b82e8169f0f78c1b1005164e0)

1. **Management of Infants Born to Mothers with Suspected or Confirmed COVID-19**  
   Anon. American Academy of Pediatrics 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=dd540f5f87905bf0c2b07be205349478)

1. **Management of mothers and neonates in low resources setting during covid-19 pandemia**  
   Trevisanuto D. The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians 2020;:1-12.

The coronavirus disease (COVID-19) epidemic started in the Hubei province of China, but is rapidly spreading all over the world. Much of the information and literature have been centered on the adult population while a few reports pertaining to COVID-19 and neonates have been published so far. Actual guidelines are based on expert opinion and show significant differences among the official neonatal societies around the world. Recommendations for the care of neonates born to suspected or confirmed COVD-19 positive mothers in low-resource settings are very limited. This perspective aims to provide practical support for the planning of delivery, resuscitating, stabilizing, and providing postnatal care to an infant born to a mother with suspected or confirmed COVID-19 in low-resource settings where resources for managing emergency situations are limited.

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1. **Management of newborns exposed to mothers with confirmed or suspected COVID-19**  
   Amatya S. Journal of perinatology : official journal of the California Perinatal Association 2020;40:987-996.

There is limited information about newborns with confirmed or suspected COVID-19. Particularly in the hospital after delivery, clinicians have refined practices in order to prevent secondary infection. While guidance from international associations is continuously being updated, all facets of care of neonates born to women with confirmed or suspected COVID-19 are center-specific, given local customs, building infrastructure constraints, and availability of protective equipment. Based on anecdotal reports from institutions in the epicenter of the COVID-19 pandemic close to our hospital, together with our limited experience, in anticipation of increasing numbers of exposed newborns, we have developed a triage algorithm at the Penn State Hospital at Milton S. Hershey Medical Center that may be useful for other centers anticipating a similar surge. We discuss several care practices that have changed in the COVID-19 era including the use of antenatal steroids, delayed cord clamping (DCC), mother-newborn separation, and breastfeeding. Moreover, this paper provides comprehensive guidance on the most suitable respiratory support for newborns during the COVID-19 pandemic. We also present detailed recommendations about the discharge process and beyond, including providing scales and home phototherapy to families, parental teaching via telehealth and in-person education at the doors of the hospital, and telehealth newborn follow-up.

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1. **Management of pregnant women infected with COVID-19**  
   Luo Y. The Lancet Infectious Diseases 2020;20:513-514.

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1. **Management of the mother-infant dyad with suspected or confirmed SARS-CoV-2 infection in a highly epidemic context**  
   Pietrasanta C. Journal of neonatal-perinatal medicine 2020;:No page numbers.

addresses a number of aspects of the mother-infant dyad management during SARS-CoV-2 epidemic. Networking among maternity centers and anticipatory planning is essential to organise the assistance to mothers and neonates in maternity and neonatal wards. Early identification of SARS-CoV-2 infected mothers, before delivery, allows their management through dedicated protocols and minimizes the risk of contagion for other patients and healthcare providers. Vertical transmission of SARS-CoV-2 cannot be excluded at present, and should be ruled out as soon as possible after birth. Rooming in of infected mothers and neonates, provided their good clinical conditions, is not contraindicated based on current knowledge. The choice of breastfeeding should be carefully discussed with parents based on current, evolving scientific evidence.

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1. **Managing a tertiary-level NICU in the time of COVID-19: Lessons learned from a high-risk zone**  
   Cavicchiolo M. E. Pediatric pulmonology 2020;55:1308-1310.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=c99ae72cfb0741b20cbeff38bb017a9f)

1. **Managing COVID-19 disease in pediatric patients**  
   Ei Ye M. Cleveland Clinic journal of medicine 2020;:No page numbers.

Managing COVID-19 disease in pediatric patients. Children are less likely to be infected with SARS-CoV-2 than adults and often have a milder course of COVID-19 disease and a lower case fatality rate. Children account for an estimated 1% to 5% of those diagnosed with COVID-19. Even so, preschool-aged children, infants, and children with underlying health conditions may still be at risk for severe disease and complications. Unique aspects of COVID-19 presentation and disease course in children and possible vertical transmission to newborns from COVID-19-positive mothers are discussed.Copyright © 2020 The Cleveland Clinic Foundation. All Rights Reserved.

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1. **Managing COVID-19 Iinfection in pediatric patients**  
   Mon E. Y. Cleveland Clinic journal of medicine 2020;:No page numbers.

Children are less likely to be infected with SARS-CoV-2 than adults and often have a milder course of illness and a lower case fatality rate. Children account for an estimated 1% to 5% of those diagnosed with COVID-19.1 Even so, pre-school-aged children, infants, and children with underlying health conditions may still be at risk for severe disease and complications.2 Unique aspects of COVID-19 presentation and course in children and possible vertical transmission to newborns from COVID-19-positive mothers are discussed.Copyright © 2020 The Cleveland Clinic Foundation. All Rights Reserved.

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1. **Managing COVID-19-Positive Maternal–Infant Dyads: An Italian Experience**  
   Salvatori G. Breastfeeding Medicine 2020;15:347-348.

1. **Managing neonates with respiratory failure due to SARS-CoV-2**  
   De Luca D. The Lancet Child and Adolescent Health 2020;4:e8.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=ff3b76fda5c93b860b88ab5e71a1aaeb)

1. **Maternal and neonatal consequences of coronavirus COVID-19 infection during pregnancy: a scoping review**  
   Caparros-Gonzalez R. A. Consecuencias maternas y neonatales de la infeccion por coronavirus COVID-19 durante el embarazo: una scoping review. 2020;94:No page numbers.

BACKGROUND: Coronavirus disease 2019 (COVID-19) is a new pathology, declared a public health emergency by the World Health Organization, which can have negative consequences for pregnant women and their newborns. The aim of this study was to explore the available knowledge on the consequences of developing COVI-19 in pregnant women and their neonates., METHODS: Scoping Review, in which the search for articles was conducted using DeCS ("pregnancy", "coronavirus", "health") and MeSH ("pregnan\*", "pregnant women", "coronavirus"), linking the terms with the Boolean AND operator. Databases used were Web of Science, Scopus, BVS, Scielo and CUIDEN. In addition, the PRISMA methodology was applied., RESULTS: Ten studies were identified that assessed maternal and neonatal health after maternal COVID-19 infection. Pregnant women seem to had no serious symptoms. Neonates appeared to be affected to a greater extent. A death was reported in a premature newborn whose mother had COVID-19 pneumonia. There did not appear to be vertical transmission from mother to child. Nevertheless, this information was not conclusive., CONCLUSIONS: COVID-19 appears to be more benign with pregnant women than with their neonates.

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1. **Maternal and neonatal outcomes associated with COVID-19 infection: A systematic review**  
   Smith V. PloS one 2020;15:e0234187.

BACKGROUND: COVID-19 has created an extraordinary global health crisis. However, with limited understanding of the effects of COVID-19 during pregnancy, clinicians and patients are forced to make uninformed decisions., OBJECTIVES: To systematically evaluate the literature and report the maternal and neonatal outcomes associated with COVID-19., SEARCH STRATEGY: PubMed, MEDLINE, and EMBASE were searched from November 1st, 2019 and March 28th, 2020., SELECTION CRITERIA: Primary studies, reported in English, investigating COVID-19-positive pregnant women and reporting their pregnancy and neonatal outcomes., DATA COLLECTION AND ANALYSIS: Data in relation to clinical presentation, investigation were maternal and neonatal outcomes were extracted and analysed using summary statistics. Hypothesis testing was performed to examine differences in time-to-delivery. Study quality was assessed using the ICROMS tool., MAIN RESULTS: Of 73 identified articles, nine were eligible for inclusion (n = 92). 67.4% (62/92) of women were symptomatic at presentation. RT-PCR was inferior to CT-based diagnosis in 31.7% (26/79) of cases. Maternal mortality rate was 0% and only one patient required intensive care and ventilation. 63.8% (30/47) had preterm births, 61.1% (11/18) fetal distress and 80% (40/50) a Caesarean section. 76.92% (11/13) of neonates required NICU admission and 42.8% (40/50) had a low birth weight. There was one indeterminate case of potential vertical transmission. Mean time-to-delivery was 4.3+/-3.08 days (n = 12) with no difference in outcomes (p>0.05)., CONCLUSIONS: COVID-19-positive pregnant women present with fewer symptoms than the general population and may be RT-PCR negative despite having signs of viral pneumonia. The incidence of preterm births, low birth weight, C-section, NICU admission appear higher than the general population.

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1. **Maternal and Neonatal Response to COVID-19**  
   Golden T. N. American journal of physiology. Endocrinology and metabolism 2020;:No page numbers.

The risk of severe acute respiratory distress syndrome-associated coronavirus-2 (SARS-CoV-2) to maternal and newborn health has yet to be determined. Several reports suggest pregnancy does not typically increase the severity of disease, however, several cases of pre-eclampsia and preterm birth have been reported. Reports of placental infection and vertical transmission are rare. Interestingly, despite lack of SARS-CoV-2 placenta productive infection there are several reports of significant abnormalities in placenta morphology. Continued research on pregnant women infected with SARS-CoV-2 and their offspring is vitally important.

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1. **Maternal and perinatal outcomes with COVID-19: A systematic review of 108 pregnancies**  
   Zaigham M. Acta obstetricia et gynecologica Scandinavica 2020;99:823-829.

INTRODUCTION: The pandemic caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has exposed vulnerable populations to an unprecedented global health crisis. The knowledge gained from previous human coronavirus outbreaks suggests that pregnant women and their fetuses are particularly susceptible to poor outcomes. The objective of this study was to summarize the clinical manifestations and maternal and perinatal outcomes of COVID-19 during pregnancy., MATERIAL AND METHODS: We searched databases for all case reports and series from 12 February to 4 April 2020. Multiple terms and combinations were used including COVID-19, pregnancy, maternal mortality, maternal morbidity, complications, clinical manifestations, neonatal morbidity, intrauterine fetal death, neonatal mortality and SARS-CoV-2. Eligibility criteria included peer-reviewed publications written in English or Chinese and quantitative real-time polymerase chain reaction (PCR) or dual fluorescence PCR-confirmed SARS-CoV-2 infection. Unpublished reports, unspecified date and location of the study or suspicion of duplicate reporting, cases with suspected COVID-19 that were not confirmed by a laboratory test, and unreported maternal or perinatal outcomes were excluded. Data on clinical manifestations, maternal and perinatal outcomes including vertical transmission were extracted and analyzed., RESULTS: Eighteen articles reporting data from 108 pregnancies between 8 December 2019 and 1 April 2020 were included in the current study. 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% of the women 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., CONCLUSIONS: Although the majority of mothers were discharged without any major complications, severe maternal morbidity as a result of COVID-19 and perinatal deaths were reported. Vertical transmission of the COVID-19 could not be ruled out. Careful monitoring of pregnancies with COVID-19 and measures to prevent neonatal infection are warranted. Copyright © 2020 The Authors. Acta Obstetricia et Gynecologica Scandinavica published by John Wiley & Sons Ltd on behalf of Nordic Federation of Societies of Obstetrics and Gynecology (NFOG).

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1. **Maternal transmission of SARS-COV-2 to the neonate, and possible routes for such transmission: A systematic review and critical analysis**  
   Walker K. F. BJOG : an international journal of obstetrics and gynaecology 2020;:No page numbers.

BACKGROUND: Early reports of COVID-19 in pregnancy described management by caesarean, strict isolation of the neonate and formula feeding, is this practise justified?, OBJECTIVE: To estimate the risk of the neonate becoming infected with SARS-COV-2 by mode of delivery, type of infant feeding and mother-infant interaction SEARCH STRATEGY: Two biomedical databases were searched between September 2019 - June 2020., SELECTION CRITERIA: Case reports or case series of pregnant women with confirmed COVID-19, where neonatal outcomes were reported., DATA COLLECTION AND ANALYSIS: Data was extracted on mode of delivery, infant infection status, infant feeding and mother-infant interaction. For reported infant infection a critical analysis was performed to evaluate the likelihood of vertical transmission., MAIN RESULTS: We included 49 studies which included 666 neonates and 655 women where information was provided on the mode of delivery and the infant's infection status. 28/666 (4%) neonates had confirmed COVID-19 infection postnatally. Of the 291 women who delivered vaginally, 8/292 (2.7%) neonates were positive. Of the 364 women who had a Caesarean birth, 20/374 (5.3%) neonates were positive. Of the 28 neonates with confirmed COVID-19 infection, 7 were breast fed, 3 formula fed, 1 was given expressed breast milk and in 17 neonates the method of infant feeding was not reported., CONCLUSIONS: Neonatal COVID-19 infection is uncommon, uncommonly symptomatic, and the rate of infection is no greater when the baby is born vaginally, breastfed or allowed contact with the mother. Copyright This article is protected by copyright. All rights reserved.

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1. **Maternal-foetal Transmission of SARS-Cov-2**  
   Centre Hospitalier Regional d. O. ClinicalTrials.gov 2020;:No page numbers.

One case of maternal-fetal transmission of SARS Cov-2 was published (1). Ig M and Ig G were found at two hours after birth of a new born from a mother COVID-19. Another study on few newborns COVID-19 reported that the SARS-Cov-2 was not transmitted in utero but only after birth. Although there are few data on COVID-19 during pregnancy, according to our national data collections, it appears to be responsible for miscarriages and fetal deaths. There are also intrauterine growth restrictions and an increase of the rate of cesarean sections for maternal indications. Therefore, it is essential to know if there is a maternal viremia which infects the fetus because the consequences in terms of management would be completely different. In fact, the potential intrauterine infection will lead to antenatal monitoring of these patients with an antenatal diagnosis and may be a treatment. Therefore, it seems essential to explore the mode of transmission to the newborn since many newborns have COVID-19 infection We will propose to all pregnant women SARS- Cov-2 positive to perform PCR SARS-Cov-2 tests and /or serology's (IgM and Ig G) on the amniotic fluid, the blood cord and the placenta.

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1. **Maternity care for mothers and babies during the COVID-19 pandemic**  
   Anon. Queensland Health 2020;:No page numbers.

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1. **Maximizing the Calm before the Storm: Tiered Surgical Response Plan for Novel Coronavirus (COVID-19)**  
   Ross S. W. J Am Coll Surg 2020;:No page numbers.

The novel coronavirus (COVID-19) was first diagnosed in Wuhan, China in December 2019 and has now spread throughout the world, being verified by the World Health Organization as a pandemic on March 11. This had led to the calling of a national emergency on March 13 in the US. Many hospitals, healthcare networks, and specifically, departments of surgery, are asking the same questions about how to cope and plan for surge capacity, personnel attrition, novel infrastructure utilization, and resource exhaustion. Herein, we present a tiered plan for surgical department planning based on incident command levels. This includes acute care surgeon deployment (given their critical care training and vertically integrated position in the hospital), recommended infrastructure and transfer utilization, triage principles, and faculty, resident, and advanced care practitioner deployment.

1. **Measurement of airborne particle exposure during simulated tracheal intubation using various proposed aerosol containment devices during the COVID-19 pandemic**  
   Simpson J. P. Anaesthesia 2020;:No page numbers.

The COVID-19 pandemic has led to the production of novel devices intended to protect airway managers during the aerosol-generating procedure of tracheal intubation. Using an in-situ simulation model, we evaluated laryngoscopist exposure of airborne particles sized 0.3 - 5.0 microns using five aerosol containment devices (aerosol box; sealed box with and without suction; vertical drape; and horizontal drape) compared with no aerosol containment device. Nebulised saline was used as the aerosol-generating model for 300 seconds, at which point, the devices were removed to assess particle spread. Primary outcome was the quantity and size of airborne particles measured at the level of the laryngoscopist's head at 30, 60, 120, and 300 seconds, as well as 360 seconds (60 seconds after device removal). Airborne particles sizes of 0.3, 0.5, 1.0, 2.5 and 5.0 microns were quantified using an electronic airborne particle counter. Compared with no device use, the sealed intubation box with suction resulted in a decrease in 0.3, 0.5, 1.0 and 2.5 micron, but not 5.0 micron, particle exposure over all time-periods (p = 0.003 for all time periods). Compared with no device use, the aerosol box showed an increase in 1.0, 2.5 and 5.0 micron airborne particle exposure at 300 seconds (p = 0.002, 0.008, 0.002, respectively). Compared with no device use, neither horizontal nor vertical drapes showed any difference in any particle size exposure at any time. Finally, when the patient coughed, use of the aerosol box resulted in a marked increase in airborne particle exposure compared with other devices or no device use. In conclusion, novel devices intended to protect the laryngoscopist require objective testing to ensure they are fit for purpose and do not result in increased airborne particle exposure.

1. **Mechanisms and evidence of vertical transmission of infections in pregnancy including SARS-CoV-2**  
   Mahyuddin A. P. Prenat Diagn 2020;:No page numbers.

There remain unanswered questions concerning mother-to-child-transmission (MTCT) of SARS-CoV-2. Despite reports of neonatal COVID-19, SARS-CoV-2 has not been consistently isolated in perinatal samples thus, definitive proof of transplacental infection is still lacking. To address these questions, we assessed investigative tools used to confirm maternal-fetal infection and known protective mechanisms of the placental barrier that prevent transplacental pathogen migration. Forty studies of COVID-19 pregnancies reviewed suggest a lack of consensus on diagnostic strategy for congenital infection. While RT-PCR of neonatal swabs was universally performed, a wide range of clinical samples was screened including vaginal secretions (22.5%), amniotic fluid (35%), breast milk (22.5%) and umbilical cord blood. Neonatal COVID-19 was reported in eight studies, two of which were based on the detection of SARS-CoV-2 IgM in neonatal blood. Histological examination demonstrated sparse viral particles, vascular malperfusion and inflammation in the placenta from pregnant women with COVID-19. The paucity of placental co-expression of ACE-2 and TMPRSS2, two receptors involved in cytoplasmic entry of SARS-CoV-2, may explain its relative insensitivity to transplacental infection. Viral interactions may utilise membrane receptors other than ACE-2 thus, tissue susceptibility may be broader than currently known. Further spatial-temporal studies are needed to determine the true potential for transplacental migration. This article is protected by copyright. All rights reserved.

1. **Mechanisms and evidence of vertical transmission of infections in pregnancy including SARS‐CoV‐2**  
   Mahyuddin A. Prenatal Diagnosis 2020;:No page numbers.

1. **Midwives ordering testing for COVID-19**  
   Anon. Ontario Midwives 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=b862bac5086089b6474c53f9ac950598)

1. **Mother to Child SARS-CoV-2 Transmission: Fact or Fantasy**  
   Egloff C. Virologie (Montrouge) 2020;24:142-146.

The emerging coronavirus called SARS-CoV-2 has spread rapidly around the world. Responsible for severe pneumonitis (Covid-19), there are also doubts concerning a possible mother-to-fetal transmission of this virus. Current data are patchy and obtained from small groups of patients. They tend to support the idea that the mother-to-fetal transmission of SARS-CoV-2 is very rare, but the period between infection and childbirth was often very short and may not allow sufficient replication to consider transplacental passage. Here, we reviewed the existing virological data and those remaining to explore. Thus, the natural history of SARS-CoV-2 infection in pregnant women and the risk of transmission in utero is not yet fully understood and defined. Four months from the emergence of this virus, it is therefore reasonable to wait for the results of specific studies on larger cohorts which, to be conclusive, must meet the best scientific criteria.

1. **Multi-centre Spanish study found no incidences of viral transmission in infants born to mothers with COVID-19**  
   Marin Gabriel M. A. Acta Paediatr 2020;:No page numbers.

AIM: Our aim was to describe the clinical features of mothers infected with COVID-19 and examine any potential vertical mother to newborn transmission. We also assessed how effective the discharge recommendations were in preventing transmission during the first month of life. METHODS: This multicentre descriptive study involved 16 Spanish hospitals. We reviewed the medical records of 42 pregnant women diagnosed with COVID-19 from 13 March to 29 March 2020, when they were in their third trimester of pregnancy. They and their newborn infants were monitored until the infant was one month old. RESULTS: Over half (52.4%) of the women had a vaginal delivery. The initial clinical symptoms were coughing (66.6%) and fever (59.5%) and one mother died due to thrombo-embolic events. We admitted 37 newborn infants to the neonatal unit (88%) and 28 were then admitted to intermediate care for organisational virus-related reasons. No infants died and no vertical transmission was detected during hospitalisation or follow up. Only six were exclusively breastfed at discharge CONCLUSION: There was no evidence of COVID-19 transmission in any of the infants born to COVID-19 mothers and the post discharge advice seemed effective. The measures to avoid transmission appeared to reduce exclusive breastfeeding at discharge.

1. **National active surveillance to understand and inform neonatal care in COVID-19**  
   Gale C. Archives of Disease in Childhood: Fetal and Neonatal Edition 2020;105:346-347.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=862660b94bdfb361627efb39aa178807)

1. **Neonatal early-onset infection with SARS-CoV-2 in 33 neonates born to mothers with COVID-19 in Wuhan, China**  
   Zeng L. JAMA pediatrics 2020;:No page numbers.

1. **Neonatal intensive care unit preparedness for the Novel Coronavirus Disease-2019 pandemic: A New York City hospital perspective**  
   Verma S. Current problems in pediatric and adolescent health care 2020;50:100795.

In January 2020, China reported a cluster of cases of pneumonia associated with a novel pathogenic coronavirus provisionally named Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV2). Since then, Coronavirus Disease 2019 (COVID-19) has been reported in more than 180 countries with approximately 6.5 million known infections and more than 380,000 deaths attributed to this disease as of June 3rd , 2020 (Johns Hopkins University COVID map; https://coronavirus.jhu.edu/map.html) The majority of confirmed COVID-19 cases have been reported in adults, especially older individuals with co-morbidities. Children have had a relatively lower rate and a less serious course of infection as reported in the literature to date. One of the most vulnerable pediatric patient populations is cared for in the neonatal intensive care unit. There is limited data on the effect of COVID-19 in fetal life, and among neonates after birth. Therefore there is an urgent need for proactive preparation, and planning to combat COVID-19, as well as to safeguard patients, their families, and healthcare personnel. This review article is based on the Centers for Disease Control and Prevention's (CDC) current recommendations for COVID-19 and its adaptation to our local resources. The aim of this article is to provide basic consolidated guidance and checklists to clinicians in the neonatal intensive care units in key aspects of preparation needed to counter exposure or infection with COVID-19. We anticipate that CDC will continue to update their guidelines regarding COVID-19 as the situation evolves, and we recommend monitoring CDC's updates for the most current information. Copyright © 2020 Elsevier Inc. All rights reserved.

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1. **Neonatal Late Onset Infection with Severe Acute Respiratory Syndrome Coronavirus 2**  
   Buonsenso D. American journal of perinatology 2020;37:869-872.

OBJECTIVE: To date, no information on late-onset infection in newborns to mother with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) contracted in pregnancy are available. This study aimed to evaluate postdischarge SARS-CoV-2 status of newborns to mothers with COVID-19 in pregnancy that, at birth, were negative to SARS-CoV-2., STUDY DESIGN: This is an observational study of neonates born to mothers with coronavirus disease 2019 (COVID-19)., RESULTS: Seven pregnant women with documented SARS-CoV-2 infection have been evaluated in our institution. 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. Two newborns were enrolled in the study. At birth and 3 days of life, newborns were negative to SARS-CoV-2. At 2-week follow-up, one newborn tested positive although asymptomatic., CONCLUSION: Our findings highlight the importance of follow-up of newborns to mothers with COVID-19 in pregnancy, since they remain at risk of contracting the infection in the early period of life and long-term consequences are still unknown., KEY POINTS: . Newborns to mothers with coronavirus disease 2019 (COVID-19) in pregnancy can acquire the infection later after birth.. . Newborns to mothers with COVID-19 in pregnancy need a long-term follow-up, even if they tested negative at birth.. . Specific guidelines for the long-term follow-up of newborns to mothers with COVID-19 in pregnancy are needed.. Copyright Thieme Medical Publishers 333 Seventh Avenue, New York, NY 10001, USA.

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1. **Neonatal Management During the Coronavirus Disease (COVID-19) Outbreak: The Chinese Experience**  
   Ma X. NeoReviews 2020;21:e293-e297.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=65f184e24e290e027e07bdbc13743d0c)

1. **Neonatal Resuscitation and Postresuscitation Care of Infants Born to Mothers with Suspected or Confirmed SARS-CoV-2 Infection**  
   Chandrasekharan P. American journal of perinatology 2020;37:813-824.

The first case of novel coronavirus disease of 2019 (COVID-19) caused by severe acute respiratory syndrome-coronavirus 2 (SARS-CoV-2) was reported in November2019. The rapid progression to a global pandemic of COVID-19 has had profound medical, social, and economic consequences. Pregnant women and newborns represent a vulnerable population. However, the precise impact of this novel virus on the fetus and neonate remains uncertain. Appropriate protection of health care workers and newly born infants during and after delivery by a COVID-19 mother is essential. There is some disagreement among expert organizations on an optimal approach based on resource availability, surge volume, and potential risk of transmission. The 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 postdischarge 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. KEY POINTS: . The risk of vertical transmission is unclear; transmission from family members/providers to neonates is possible.. . Optimal personal-protective-equipment (airborne vs. droplet/contact precautions) for providers is crucial to prevent transmission.. . Parents should be engaged in shared decision-making with options for rooming in, skin-to-skin contact, and breastfeeding.. Copyright Thieme Medical Publishers 333 Seventh Avenue, New York, NY 10001, USA.

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1. **Neonatal resuscitation where the mother has a suspected or confirmed novel coronavirus (SARS-CoV-2) infection: suggestion for a pragmatic action plan**  
   Trevisanuto D. Neonatology 2020;:1-8.

1. **New corona virus (COVID-19) management in pregnancy and childbirth**  
   Asadi L. Archives of Clinical Infectious Diseases 2020;15:e102938.

Context: Coronavirus disease 2019 (COVID-19) is an emerging disease that has been associated with a rapid increase in afflicted cases and deaths since its first introduction in Wuhan, China, in December 2019. The emerging infection can have a significant impact on pregnant women and the fetus. The purpose of this study was to review and summarize the latest research on the management and treatment of women in pregnancy and childbirth in the world and management protocols available in Iran and other countries. Evidence Acquisition: In this review study, we examined Persian and English studies by searching the Pubmed, Web of Science, UpToDate, SID, Scopus, Google Scholar, and medRxiv databases with keywords pregnant, pregnancy, gravidity, coronavirus, infec-tion, COVID-19, and their Persian equivalents. Articles and reviews were on humans. After reviewing and removing duplicate and non-eligible articles, 12 articles and 11 guidelines and recommendations were obtained. Result(s): The results of the review study were categorized as follows: clinical course of COVID-19 in pregnancy, perinatal outcomes, neonatal outcomes, vertical transmission potential, management of COVID-19 in pregnancy, labor, and delivery in women, postpartum stage in women with COVID-19, breastfeeding, and care for a infant born to a mother with COVID-19. The general princi-ples of caring for women in pregnancy and childbirth included early separation, using aggressive infection control methods, non-administration of corticosteroids repeatedly, oxygen therapy, preventing from fluid overload, using empirical antibiotics (due to the risk of secondary bacterial infection), co-infection testing of other infections, avoiding breastfeeding in mothers with definitive positive tests, and being cautious in suspicious cases. Conclusion(s): Given the limited information on the complications and outcomes of the virus in pregnancy and childbirth and the increasing number of studies, the provision of up-to-date care according to global and regional processes and guidelines is recommended for mothers affected and suspected with COVID-19.Copyright © 2020, Author(s).

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1. **New evidences that discard the possible vertical transmission of SARS-CoV-2 during pregnancy**  
   Hijona Elosegui J. J. Nuevas evidencias que descartan la posible transmision vertical del SARS-CoV-2 durante la gestacion. 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=7a0baa8cf3bba4b2a6545d48fde6b4b9)

1. **NICU care for infants born to mothers with suspected or proven COVID-19**  
   Anon. Canadian Paediatric Society 2020;:No page numbers.

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1. **No evidence of vertical transmission of SARS-CoV-2 after induction of labour in an immune-suppressed SARS-CoV-2-positive patient**  
   Grimminck K. BMJ Case Reports CP 2020;13:e235581.

1. **No SARS-CoV-2 detected in amniotic fluid in mid-pregnancy**  
   Yu N. The Lancet. Infectious Diseases 2020;:No page numbers.

1. **Northeast COVID-19 and Pregnancy Study Group**  
   Instituto Materno Infantil Prof. Fernando F. ClinicalTrials.gov 2020;:No page numbers.

A prospective and retrospective cohort study. The objective will to determine the frequency of COVID-19 in pregnant and postpartum women hospitalized with flu syndrome, to evaluate clinical and laboratory predictors of COVID-19 progression and to determine the factors associated with adverse maternal and perinatal outcomes in healthcare centers in two states of Northeast Brazil.The study will be conducted including pregnant and postpartum women with clinical or laboratorial diagnosis of COVID-19, admitted in six healthcare centers in the Northeast of Brazil. All pregnant and postpartum women with clinical and/or diagnosis of COVID-19, attended in prenatal care, in emergency (maternity triage), high-risk pregnancy ward, obstetric intensive care unit and rooming-in ward will be included. The data will be collected in specific forms. The exams will be carried out by trained professionals within each institution.

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1. **Novel Coronavirus 2019 (COVID-19)**  
   Anon. American College of Obstetricians and Gynecologists 2020;:No page numbers.

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1. **Novel Coronavirus disease (COVID-19) in newborns and infants: what we know so far**  
   De Rose D. U. Italian Journal of Pediatrics 2020;46:1-8.

1. **Novel coronavirus infection in newborn babies under 28 days in China**  
   Zhang Z. J. European Respiratory Journal 2020;:No page numbers.

1. **Novel coronavirus-related acute respiratory distress syndrome in a patient with twin pregnancy: A case report**  
   Mehta H. Case reports in women's health 2020;:e00220.

We present the case of a 39-year-old woman, G1P0, who had conceived twins via in-vitro fertilization, who presented at 27weeks of gestation with nasal congestion and dry cough for 7days. On presentation, her physical examination was benign, except for sinus tachycardia, and she was oxygenating adequately on room air. Laboratory studies were unremarkable, except a PCR test positive for SARS-COV2, and a CT scan of her chest showed bilateral multi-focal ground-glass opacities. A fetal non-stress test was reassuring. She was treated with intravenous fluids, ceftriaxone, azithromycin, and hydroxychloroquine. During her hospital stay, she developed progressively worsening respiratory failure, initially requiring non-invasive ventilation, and subsequently progressed to acute respiratory distress syndrome requiring mechanical ventilation. She then suffered from sudden hypoxemia and hemodynamic collapse, on maximal ventilatory support, prompting an emergency cesarean section at bedside. This led to rapid stabilization of hemodynamic parameters, and of her overall respiratory status. Both the twins were born prematurely, and one of them tested positive for SARS-COV2. Copyright © 2020 Published by Elsevier B.V.

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1. **Obstetric anesthesia during the COVID-19 pandemic**  
   Bauer M. E. Anesthesia & Analgesia 2020;131:7-15.

1. **Obstetric Management of COVID-19 in Pregnant Women**  
   Mei Y. Frontiers in microbiology 2020;11:1186.

The 2019 novel coronavirus disease (COVID-19), which is caused by the novel beta coronavirus, SARS-CoV-2, is currently prevalent all over the world, causing thousands of deaths with relatively high virulence. Like two other notable beta coronaviruses, severe acute respiratory syndrome coronavirus-1 (SARS-CoV-1) and Middle East respiratory syndrome coronavirus (MERS-CoV), SARS-CoV-2 can lead to severe contagious respiratory disease. Due to impaired cellular immunity and physiological changes, pregnant women are susceptible to respiratory disease and are more likely to develop severe pneumonia. Given the prevalence of COVID-19, it is speculated that some pregnant women have already been infected. However, limited data are available for the clinical course and management of COVID-19 in pregnancy. Therefore, we conducted this review to identify strategies for the obstetric management of COVID-19. We compared the clinical course and outcomes of COVID-19, SARS, and MERS in pregnancy and discussed several drugs for the treatment of COVID-19 in pregnancy. Copyright © 2020 Mei, Luo, Wei, Liao, Pan, Yang and Lin.

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1. **Obstetrics and Neonatal Outcomes in Pregnant Women with COVID-19: A Systematic Review**  
   Banaei M. Iranian Journal of Public Health 2020;49:38-47.

Background: Considering that the obstetricians and pediatricians need to comprehensive information about the obstetric and neonatal effect of COVID-19, this review study was conducted to investigate the impact of COVID-19 on obstetrics and neonatal outcomes. Methods: In this systematic review the international search databases following PubMed, Web of Science, Scopus, ProQuest and Embase and Google scholar were searched. All articles were reviewed by two independent researchers until 10 April 2020. After quality assessment of included studies the finding reported in 2 sections obstetrics and neonatal outcomes. Results: The sixteen studies with a sample size of 123 pregnant women with a definitive diagnosis of COVID-19 and their neonates were evaluated. The range of gestational age was 25-40 weeks. There was no death associated with COVID-19 in pregnant women. The obstetric outcomes in pregnant women with COVID-19 include decreased fetal movement, intrauterine fetal distress, anemia, PROM, preterm labor, Multiple Organ Dysfunction Syndrome (MODS) and etc. The most common delivery mode in women affect with COVID-19 was cesarean section. Expect for one case with MODS, in the majority of the studies reviewed, no severe morbidity or mortality occurred. The neonatal outcomes were stillbirth, prematurity, asphyxia, fetal distress, low birth weight, small for gestational age, large for gestational age, multiple organ dysfunction syndrome, disseminated intravascular coagulation and neonatal death. In addition, five neonates born to mothers with COVID-19 were positive for SARS-CoV-2. However, the studies report these outcomes but the exact causes of theme are not known. Conclusion: In this systematic review, we summarize the diverse results of studies about the obstetrics and neonatal outcomes following COVID-19. This infection may cause negative outcomes in both mothers and neonates. However, there were evidence about neonate infected with COVID-19, but there is controversial information about the vertical transmission of COVID-19.

1. **Outcome of coronavirus spectrum infections (SARS, MERS, COVID-19) during pregnancy: a systematic review and meta-analysis**  
   Di Mascio D. American Journal of Obstetrics and Gynecology MFM 2020;2:100107.

Objective: The aim of this systematic review was to report pregnancy and perinatal outcomes of coronavirus spectrum infections, and particularly coronavirus 2019 (COVID-19) disease because of severe acute respiratory syndrome-coronavirus-2 infection during pregnancy. Data Sources: Medline, Embase, Cinahl, and Clinicaltrials.gov databases were searched electronically utilizing combinations of word variants for coronavirus or severe acute respiratory syndrome or SARS or Middle East respiratory syndrome or MERS or COVID-19 and pregnancy. The search and selection criteria were restricted to English language. Study Eligibility Criteria: Inclusion criteria were hospitalized pregnant women with a confirmed coronavirus related-illness, defined as severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS), or COVID-19. Study Appraisal and Synthesis Methods: We used meta-analyses of proportions to combine data and reported pooled proportions, so that a pooled proportion may not coincide with the actual raw proportion in the results. The pregnancy outcomes observed included miscarriage, preterm birth, preeclampsia, preterm prelabor rupture of membranes, fetal growth restriction, and mode of delivery. The perinatal outcomes observed were fetal distress, Apgar score <7 at 5 minutes, neonatal asphyxia, admission to a neonatal intensive care unit, perinatal death, and evidence of vertical transmission. Result(s): Nineteen studies including 79 hospitalized women were eligible for this systematic review: 41 pregnancies (51.9%) affected by COVID-19, 12 (15.2%) by MERS, and 26 (32.9%) by SARS. An overt diagnosis of pneumonia was made in 91.8%, and the most common symptoms were fever (82.6%), cough (57.1%), and dyspnea (27.0%). For all coronavirus infections, the pooled proportion of miscarriage was 64.7% (8/12; 95% confidence interval, 37.9-87.3), although reported only for women affected by SARS in two studies with no control group; the pooled proportion of preterm birth <37 weeks was 24.3% (14/56; 95% confidence interval, 12.5-38.6); premature prelabor rupture of membranes occurred in 20.7% (6/34; 95% confidence interval, 9.5-34.9), preeclampsia in 16.2% (2/19; 95% confidence interval, 4.2-34.1), and fetal growth restriction in 11.7% (2/29; 95% confidence interval, 3.2-24.4), although reported only for women affected by SARS; 84% (50/58) were delivered by cesarean; the pooled proportion of perinatal death was 11.1% (5/60; 95% confidence interval, 84.8-19.6), and 57.2% of newborns (3/12; 95% confidence interval, 3.6-99.8) were admitted to the neonatal intensive care unit. When focusing on COVID-19, the most common adverse pregnancy outcome was preterm birth <37 weeks, occurring in 41.1% of cases (14/32; 95% confidence interval, 25.6-57.6), while the pooled proportion of perinatal death was 7.0% (2/41; 95% confidence interval, 1.4-16.3). None of the 41 newborns assessed showed clinical signs of vertical transmission. Conclusion(s): In hospitalized mothers infected with coronavirus infections, including COVID-19, >90% of whom also had pneumonia, preterm birth is the most common adverse pregnancy outcome. COVID-19 infection was associated with higher rate (and pooled proportions) of preterm birth, preeclampsia, cesarean, and perinatal death. There have been no published cases of clinical evidence of vertical transmission. Evidence is accumulating rapidly, so these data may need to be updated soon. The findings from this study can guide and enhance prenatal counseling of women with COVID-19 infection occurring during pregnancy, although they should be interpreted with caution in view of the very small number of included cases.Copyright © 2020 Elsevier Inc.

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1. **Pediatric impact of COVID-19**  
   L'Huillier A. G. COVID-19 : impact pediatrique. 2020;16:839-841.

Children infected with SARS-CoV-2 are underrepresented during the current COVID-19 outbreak. Unlike other respiratory viruses, SARS-CoV-2 rather infects adults who subsequently infect their children. From recent Chinese and Italian data, children commonly present mild to moderate disease, a large proportion of them being asymptomatic. In particular, children present significantly less fever, cough and pneumonia compared to adults. However, more cases of pneumonia were reported from children infected with SARS-CoV-2 compared to those infected with H1N1. No vertical transmission of SARS-CoV-2 has been described so far.

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1. **Perceived versus proven SARS-CoV-2 specific immune responses in health care workers**  
   Behrens Gmn C. A. S. M. V. W. T. E. D. H. C. J. A. Medrxiv 2020;:2020.2005.2012.20094524.

Uncertain rates of asymptomatic infections have raised concerns about potentially high rates of thus far undiagnosed SARS-CoV-2 infections. Serological testing for SARS-CoV-2 specific IgG can be helpful in identification of asymptomatic infections. We report baseline results of the CVOID-19 Contact (CoCo) Study, which follows 217 frontline healthcare workers at a university hospital and performs weekly SARS-CoV-2 specific serology (IgA/IgG). The majority of participants had direct contact to patients with infectious respiratory diseases. Study participants estimated their personal likelihood of having had a SARS-CoV-2 infection with a mean of 20.9% (range 0 to 90%). In contrast, anti-SARS-CoV-2-IgG prevalence was in the range of 1-2% among health care workers. The CoCo Study is not fully representative for other hospitals and the sensitivity of anti-SARS-CoV-2 serology in low prevalence conditions may require further improvement. Taken together, low rates of SARS-CoV-2 specific IgG in healthcare workers in Northern Germany are in sharp contrast to the high personal risk perception. Regular anti-SARS-CoV-2 IgG testing of health-care workers may aid in monitoring the pandemic, assessing the quality of immune responses, directing resources for protective measures, and assuring CVID-19 care in the long run.Competing Interest StatementTW reports grants and personal fees from Novartis, grants and personal fees from Abbvie, personal fees from Gilead, personal fees from Chugai, personal fees from Sanofi-Aventis, non-financial support from Aesku.Diagnostics, outside the submitted work; AJ reports grants and personal fees from Novartis, grants and personal fees from Abbvie, grants and personal fees from Gilead, personal fees from Roche, outside the submitted work; Dr. Enst reports grants from Novartis, during the conduct of the study; grants and personal fees from Novartis, grants and personal fees from Abbvie, grants and personal fees from Gilead, personal fees from Sanofi Aventis, personal fees from GSK, outside the submitted work; No other competing interest are being declared.Clinical TrialDRKS00021152Funding StatementNo external Funding for this work was received.Author DeclarationsAll relevant ethical guidelines have been followed; any necessary IRB and/or ethics committee approvals have been obtained and details of the IRB/oversight body are included in the manuscript.YesAll necessary patient/participant consent has been obtained and the appropriate institutional forms have been archived.YesI understand that all clinical trials and any other prospective interventional studies must be registered with an ICMJE-approved registry, such as ClinicalTrials.gov. I confirm that any such study reported in the manuscript has been registered and the trial registration ID is provided (note: if posting a prospective study registered retrospectively, please provide a statement in the trial ID field explaining why the study was not registered in advance).Yes I have followed all appropriate research reporting guidelines and uploaded the relevant EQUATOR Network research reporting checklist(s) and other pertinent material as supplementary files, if applicable.YesIndividual deidentified participant data that underlie the results will be shared. The study protocol will be available 9 -36 months after publication with researchers who propose a methodically sound proposal, proposals should be directed to behrens.georg@mh-hannover.de [Preprints are preliminary reports of work that have not been peer reviewed. Refer to the original preprint or preprint server for specific information about the individual preprint.]

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1. **Perinatal and neonatal management plan for prevention and control of 2019 novel coronavirus infection (1st Edition)**  
   Working Group for the P. Zhongguo dang dai er ke za zhi = Chinese journal of contemporary pediatrics 2020;22:87-90.

Since December 2019, the novel coronavirus (2019-nCoV) infection has been prevalent in China. Due to immaturity of immune function and the possibility of mother-fetal vertical transmission, neonates are particularly susceptible to 2019-nCoV. The perinatal-neonatal departments should cooperate closely and take integrated approaches, and the neonatal intensive care unit should prepare the emergency plan for 2019-nCoV infection as far as possible, so as to ensure the optimal management and treatment of potential victims. According to the latest 2019-nCoV national management plan and the actual situation, the Working Group for the Prevention and Control of Neonatal 2019-nCoV Infection in the Perinatal Period of the Editorial Committee of Chinese Journal of Contemporary Pediatrics puts forward recommendations for the prevention and control of 2019-nCoV infection in neonates.

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1. **Perinatal aspects on the covid-19 pandemic: a practical resource for perinatal-neonatal specialists**  
   Mimouni F. Journal of perinatology : official journal of the California Perinatal Association 2020;40:820-826.

BACKGROUND: Little is known about the perinatal aspects of COVID-19., OBJECTIVE: To summarize available evidence and provide perinatologists/neonatologists with tools for managing their patients., METHODS: Analysis of available literature on COVID-19 using Medline and Google scholar., RESULTS: 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. We cannot conclude if pregnancy is a risk factor for more severe disease in women with COVID-19. 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. Links to websites of organizations with updated COVID-19 information are provided. Infographics summarize an approach to the pregnant woman or neonate with suspected or confirmed COVID-19., CONCLUSIONS: As the pandemic continues, more data will be available that could lead to changes in current knowledge and recommendations.

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1. **Perinatal transmission of COVID-19 associated SARS-CoV-2: should we worry?**  
   Fan C. Clinical infectious diseases 2020;:No page numbers.

1. **Perinatal-Neonatal Management of COVID-19 Infection - Guidelines of the Federation of Obstetric and Gynaecological Societies of India (FOGSI), National Neonatology Forum of India (NNF), and Indian Academy of Pediatrics (IAP)**  
   Chawla D. Indian Pediatr 2020;57:536-548.

JUSTIFICATION: During the current rapidly evolving pandemic of COVID-19 infection, pregnant women with suspected or confirmed COVID-19 and their newborn infants form a special vulnerable group that needs immediate attention. Unlike other elective medical and surgical problems for which care can be deferred during the pandemic, pregnancies and childbirths continue. Perinatal period poses unique challenges and care of the mother-baby dyads requires special resources for prevention of transmission, diagnosis of infection and providing clinical care during labor, resuscitation and postnatal period. PROCESS: The GRADE approach recommended by the World Health Organization was used to develop the guideline. A Guideline Development Group (GDG) comprising of obstetricians, neonatologists and pediatricians was constituted. The GDG drafted a list of questions which are likely to be faced by clinicians involved in obstetric and neonatal care. An e-survey was carried out amongst a wider group of clinicians to invite more questions and prioritize. Literature search was carried out in PubMed and websites of relevant international and national professional organizations. Existing guidelines, systematic reviews, clinical trials, narrative reviews and other descriptive reports were reviewed. For the practice questions, the evidence was extracted into evidence profiles. The context, resources required, values and preferences were considered for developing the recommendations. OBJECTIVES: To provide recommendations for prevention of transmission, diagnosis of infection and providing clinical care during labor, resuscitation and postnatal period. RECOMMENDATIONS: A set of twenty recommendations are provided under the following broad headings: 1) pregnant women with travel history, clinical suspicion or confirmed COVID-19 infection; 2) neonatal care; 3) prevention and infection control; 4) diagnosis; 5) general questions.

1. **Placental abruption in a twin pregnancy at 32 weeks' gestation complicated by COVID-19, without vertical transmission to the babies**  
   Kuhrt K. American journal of obstetrics & gynecology MFM 2020;:100135.

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1. **Placental Pathology in COVID-19**  
   Shanes E. D. Am J Clin Pathol 2020;:No page numbers.

OBJECTIVES: To describe histopathologic findings in the placentas of women with coronavirus disease 2019 (COVID-19) during pregnancy. METHODS: Pregnant women with COVID-19 delivering between March 18, 2020, and May 5, 2020, were identified. Placentas were examined and compared to historical controls and women with placental evaluation for a history of melanoma. RESULTS: Sixteen placentas from patients with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) were examined (15 with live birth in the third trimester, 1 delivered in the second trimester after intrauterine fetal demise). Compared to controls, third trimester placentas were significantly more likely to show at least one feature of maternal vascular malperfusion (MVM), particularly abnormal or injured maternal vessels, and intervillous thrombi. Rates of acute and chronic inflammation were not increased.The placenta from the patient with intrauterine fetal demise showed villous edema and a retroplacental hematoma. CONCLUSIONS: Relative to controls, COVID-19 placentas show increased prevalence of decidual arteriopathy and other features of MVM, a pattern of placental injury reflecting abnormalities in oxygenation within the intervillous space associated with adverse perinatal outcomes. Only 1 COVID-19 patient was hypertensive despite the association of MVM with hypertensive disorders and preeclampsia. These changes may reflect a systemic inflammatory or hypercoagulable state influencing placental physiology.

1. **Placental Pathology in Covid-19 Positive Mothers: preliminary Findings**  
   Baergen Rn H. D. S. Pediatric and developmental pathology 2020;23:177-180.

This study describes the pathology and clinical information on 20 placentas whose mother tested positive for the novel Coronovirus (2019-nCoV) cases. Ten of the 20 cases showed some evidence of fetal vascular malperfusion or fetal vascular thrombosis. The significance of these findings is unclear and needs further study.

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1. **Position Statement on the Management of Cardiac Electrophysiology and Cardiac Implantable Electronic Devices in Australia During the COVID-19 Pandemic: A Living Document Version 2**  
   Anon. Cardiac Society of Australia and New Zealand 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=d72947b573d504ccaf27a4ae122fc116)

1. **Possible impact of COVID-19 on fertility and assisted reproductive technologies**  
   Blumenfeld Z. Fertil Steril 2020;114:56-57.

1. **Possible Vertical Transmission of SARS-CoV-2 from an Infected Mother to Her Newborn**  
   Dong L. JAMA - Journal of the American Medical Association 2020;323:1846-1848.

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1. **Potential influence of COVID-19/ACE2 on the female reproductive system**  
   Jing Y. Molecular human reproduction 2020;26:367-373.

The 2019 novel coronavirus (2019-nCoV) appeared in December 2019 and then spread throughout the world rapidly. The 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). We reviewed the literature that reported the distribution and function of ACE2 in the female reproductive system, hoping to clarify the potential harm of 2019-nCoV to female fertility. The available evidence suggests that ACE2 is widely expressed in the ovary, uterus, vagina and placenta. Therefore, we believe that apart from droplets and contact transmission, the possibility of mother-to-child and sexual transmission also 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, 2019-nCoV may disturb the female reproductive functions through regulating ACE2. Copyright © The Author(s) 2020. Published by Oxford University Press on behalf of European Society of Human Reproduction and Embryology. All rights reserved. For permissions, please email: journals.permissions@oup.com.

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1. **Potential Maternal and Infant Outcomes from (Wuhan) Coronavirus 2019-nCoV Infecting Pregnant Women: Lessons from SARS, MERS, and Other Human Coronavirus Infections**  
   Schwartz D. A. Viruses 2020;12:No page numbers.

In early December 2019 a cluster of cases of pneumonia of unknown cause was identified in Wuhan, a city of 11 million persons in the People's Republic of China. Further investigation revealed these cases to result from infection with a newly identified coronavirus, termed the 2019-nCoV. The infection moved rapidly through China, spread to Thailand and Japan, extended into adjacent countries through infected persons travelling by air, eventually reaching multiple countries and continents. Similar to such other coronaviruses as those causing the Middle East respiratory syndrome (MERS) and severe acute respiratory syndrome (SARS), the new coronavirus was reported to spread via natural aerosols from human-to-human. In the early stages of this epidemic the case fatality rate is estimated to be approximately 2%, with the majority of deaths occurring in special populations. Unfortunately, there is limited experience with coronavirus infections during pregnancy, and it now appears certain that pregnant women have become infected during the present 2019-nCoV epidemic. In order to assess the potential of the Wuhan 2019-nCoV to cause maternal, fetal and neonatal morbidity and other poor obstetrical outcomes, this communication reviews the published data addressing the epidemiological and clinical effects of SARS, MERS, and other coronavirus infections on pregnant women and their infants. Recommendations are also made for the consideration of pregnant women in the design, clinical trials, and implementation of future 2019-nCoV vaccines.

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1. **Pre-labor anorectal swab for SARS-CoV-2 in COVID-19 pregnant patients: is it time to think about it?**  
   Carosso A. European journal of obstetrics, gynecology, and reproductive biology 2020;249:98-99.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=064589e58baacbe985c2a1105f00f97c)

1. **Pregnancy and postpartum outcomes in a universally tested population for SARS-CoV-2 in New York City: A prospective cohort study**  
   Prabhu M. BJOG : an international journal of obstetrics and gynaecology 2020;:No page numbers.

OBJECTIVE: To describe differences in outcomes between pregnant women with and without COVID-19 DESIGN: Prospective cohort study of pregnant women consecutively admitted for delivery, and universally tested via nasopharyngeal (NP) swab for SARS-CoV-2 using reverse transcriptase polymerase chain reaction (RT-PCR). All infants of mothers with COVID-19 underwent SARS-CoV-2 testing., SETTING: Three New York City hospitals POPULATION: Pregnant women > 20 weeks' gestation admitted for delivery METHODS: Data were stratified by SARS-CoV-2 result and symptomatic status, and summarized using parametric and nonparametric tests., MAIN OUTCOME MEASURES: Prevalence and outcomes of maternal COVID-19; obstetric outcomes; neonatal SARS-CoV-2; placental pathology., RESULTS: Of 675 women admitted for delivery, 10.4% were positive for SARS-CoV-2, of whom 78.6% were asymptomatic. We observed differences in sociodemographics and comorbidities between women with symptomatic vs. asymptomatic vs. no COVID-19. Cesarean delivery rates were 46.7% in symptomatic COVID-19, 45.5% in asymptomatic COVID-19, and 30.9% without COVID-19 (p=0.044). Postpartum complications (fever, hypoxia, readmission) occurred in 12.9% of women with COVID-19 vs 4.5% of women without COVID-19 (p<0.001). No woman required mechanical ventilation, and no maternal deaths occurred. Among 71 infants tested, none were positive for SARS-CoV-2. Placental pathology demonstrated increased frequency of fetal vascular malperfusion, indicative of thrombi in fetal vessels, in women with vs. without COVID-19 (48.3% vs 11.3%, p <0.001)., CONCLUSION: Among pregnant women with COVID-19 at delivery, we observed increased cesarean delivery rates and increased frequency of maternal complications in the postpartum period. Additionally, intraplacental thrombi may have maternal and fetal implications for COVID-19 infections remote from delivery. Copyright This article is protected by copyright. All rights reserved.

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1. **Pregnancy and sars-cov-2: A novel virus in a unique population**  
   Mahony R. Irish Medical Journal 2020;113:P49.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=40afd64d593b127bb6e4254d4bf0abe0)

1. **Pregnancy outcomes, Newborn complications and Maternal-Fetal Transmission of SARS-CoV-2 in women with COVID-19: A systematic review**  
   Gajbhiye R. medRxiv 2020;:No page numbers.

1. **Pregnancy with new coronavirus infection: clinical characteristics and placental pathological analysis of three cases**  
   Chen S. Zhonghua bing li xue za zhi = Chinese journal of pathology 2020;49:418-423.

Objective: To investigate the clinical characteristics and placental pathology of 2019-nCoV infection in pregnancy,and to evaluate intrauterine vertical transmission potential of 2019-nCoV infection. Methods: The placentas delivered from pregnant women with confirmed 2019-nCoV infection which were received in the Department of Pathology, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology by February 4, 2020 were retrospectively studied. Their clinical material including placental tissue and lung CT, and laboratory results were collected, meanwhile, nucleic acid detection of 2019-nCoV of the placentas were performed by RT-PCR. Results: Three placentas delivered from pregnant women with confirmed 2019-nCoV infection, who were all in their third trimester with emergency caesarean section. All of the three patients presented with fever (one before caesarean and two in postpartum), and had no significant leukopenia and lymphopenia. Neonatal throat swabs from three newborns were tested for 2019-nCoV, and all samples were negative for the nucleic acid of 2019-nCoV. One premature infant was transferred to Department of Neonatology due to low birth weight. By the end of February 25, 2020, none of the three patients developed severe 2019-nCoV pneumonia or died(two patients had been cured and discharged, while another one had been transferred to a square cabin hospital for isolation treatment). There were various degrees of fibrin deposition inside and around the villi with local syncytial nodule increases in all three placentas. One case of placenta showed the concomitant morphology of chorionic hemangioma and another one with massive placental infarction. No pathological change of villitis and chorioamnionitis was observed in our observation of three cases. All samples from three placentas were negative for the nucleic acid of 2019-nCoV. Conclusions: The clinical characteristics of pregnant women with 2019-nCoV infection in late pregnancy are similar to those of non-pregnant patients, and no severe adverse pregnancy outcome is found in the 3 cases of our observation. Pathological study suggests that there are no morphological changes related to infection in the three placentas. Currently no evidence for intrauterine vertical transmission of 2019-nCoV is found in the three women infected by 2019-nCoV in their late pregnancy.

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1. **Pregnant women with new coronavirus infection: a clinical characteristics and placental pathological analysis of three cases**  
   Chen S. H. B. L. D. J. L. X. Y. F. Z. Y. N. X. H. B. X. Zhonghua bing li xue za zhi Chinese journal of pathology 2020;49:E005.

Objective: To investigate the clinical characteristics and placental pathology of 2019-nCoV infection in pregnancy, and to evaluate intrauterine vertical transmission potential of 2019-nCoV infection. Methods: The placentas delivered from pregnant women with confirmed 2019-nCoV infection which were received in the Department of Pathology, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology collected by February 4th, 2020 and retrospectively studied. Their clinical material including placental tissue and lung CT, and laboratory results were collected, meanwhile, nucleic acid detection of 2019-nCoV of the placentas were performed by RT-PCR. Results: Three placentas delivered from pregnant women with confirmed 2019-nCoV infection, who were all in their third trimester with emergency caesarean section. All of the three patients presented with fever (one before caesarean and two in postpartum), and had no significant leukopenia and lymphopenia. Neonatal throat swabs from three newborns were tested for 2019-nCoV, and all samples were negative for the nucleic acid of 2019-nCoV. One premature infant was transferred to Department of Neonatology due to low birth weight. By the end of February 25, 2020, none of the three patients developed severe 2019-nCoV pneumonia or died(two patients had been cured and discharged, while another one had been transferred to a square cabin hospital for isolation treatment). There were various degrees of fibrin deposition inside and around the villi with local syncytial nodule increases in all three placentas. One case of placenta showed the concomitant morphology of chorionic hemangioma and another one with massive placental infarction. No pathological change of villitis and chorioamnionitis was observed in our observation of three cases. All samples from three placentas were negative for the nucleic acid of 2019-nCoV. Conclusions: The clinical characteristics of pregnant women with 2019-nCoV infection in late pregnancy are similar to those of non-pregnant patients, and no severe adverse pregnancy outcome is found in the 3 cases of our observation. Pathological study suggests that there are no morphological changes related to infection in the three placentas. Currently no evidence for intrauterine vertical transmission of 2019-nCoV is found in the three women infected by 2019-nCoV in their late pregnancy.

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1. **Preterm delivery in pregnant woman with critical COVID-19 pneumonia and vertical transmission**  
   Zamaniyan M. Prenatal Diagnosis 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=43dbc67a146e69f13a435c5682562cc0)

1. **Prevalence and Impact of SARS-COV-2 Infection in Pregnant Women, Fetuses and Newborns**  
   Assistance Publique - Hopitaux de P. ClinicalTrials.gov 2020;:No page numbers.

A novel human coronavirus, named SevereAcute Respiratory Syndrome coronavirus 2 (SARS-CoV-2), emerged in China, in late 2019, and is now spreading quickly causing a pandemic. It is usually responsible for a mild infectious syndrome, but patients can also develop pneumonia, acute respiratory failure and other serious complications. To date, very little and controversial literature is available on the impact of SARS-CoV-2 infection on pregnancy, and the potential risk of vertical transmission. Therefore, the first part of the study, will evaluate the proportion of pregnant woman infected by SARS-CoV-2 during pregnancy over the next six months by performing SARS-CoV-2 serology during pregnancy and at delivery . This information will be correlated to pregnancy and neonatal outcome. The second part of the study 2 will collect sera from several mandatory screening that are kept for one year. Those will be used for assessing the time of the seroconversion and variations of susceptibility to infection with gestational age as well as the impact of social distancing measures. Concerning neonates born to mothers with documented SARS-CoV-2 infection during pregnancy, only few cases of congenital infections were recently reported because of pneumonia related to SARS-CoV-2 infection and/or positive IgM at birth. It remains unclear whether neonatal infection can follow transplacental transmission of SARS-CoV-2 during pregnancy and/or through early per- and postnatal exposure, including breast-feeding. In order to investigate these hypotheses, the third part of the study will perform, SARS-CoV-2 PCR tests in a variety of samples collected from infected-mother (symptomatic during the pregnancy and PCR confirmed) and child pairs, at delivery and in the postpartum period.

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1. **Prior and novel coronaviruses, Coronavirus Disease 2019 (COVID-19), and human reproduction: what is known?**  
   Segars J. Fertility and Sterility 2020;113:1140-1149.

Objective: To summarize current understanding of the effects of novel and prior coronaviruses on human reproduction, specifically male and female gametes, and in pregnancy. Design(s): Review of English publications in PubMed and Embase to April 6, 2020. Method(s): Articles were screened for reports including coronavirus, reproduction, pathophysiology, and pregnancy. Intervention(s): None. Main Outcome Measure(s): Reproductive outcomes, effects on gametes, pregnancy outcomes, and neonatal complications. Result(s): Seventy-nine reports formed the basis of the review. Coronavirus binding to cells involves the S1 domain of the spike protein to receptors present in reproductive tissues, including angiotensin-converting enzyme-2 (ACE2), CD26, Ezrin, and cyclophilins. Severe Acute Respiratory Syndrome Coronavirus 1 (SARS-CoV-1) may cause severe orchitis leading to germ cell destruction in males. Reports indicate decreased sperm concentration and motility for 72-90 days following Coronavirus Disease 2019 (COVID-19) infection. Gonadotropin-dependent expression of ACE2 was found in human ovaries, but it is unclear whether SARS-Coronavirus 2 (CoV-2) adversely affects female gametogenesis. Evidence suggests that COVID-19 infection has a lower maternal case fatality rate than SARS or Middle East respiratory syndrome (MERS), but anecdotal reports suggest that infected, asymptomatic women may develop respiratory symptoms postpartum. Coronavirus Disease 2019 infections in pregnancy are associated with preterm delivery. Postpartum neonatal transmission from mother to child has been reported. Conclusion(s): Coronavirus Disease 2019 infection may affect adversely some pregnant women and their offspring. Additional studies are needed to assess effects of SARS-CoV-2 infection on male and female fertility.Copyright © 2020 American Society for Reproductive Medicine

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1. **Probable congenital SARS-CoV-2 infection in a neonate born to a woman with active SARS-CoV-2 infection**  
   Kirtsman M. CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne 2020;192:E647-E650.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=afcbd8435cc789d05177f413e5f22ade)

1. **Probable Vertical Transmission of SARS-CoV-2 Infection**  
   Demirjian A. Pediatr Infect Dis J 2020;:No page numbers.

BACKGROUND: To date, although neonatal infections with severe acute respiratory syndrome coronovirus 2 (SARS-CoV-2) have been described, none of these have been proven to be the result of vertical transmission of SARS-CoV-2. METHODS: We describe the probable vertical transmission of SARS-CoV-2 in a neonate born to a mother with coronavirus disease 2019 (COVID-19). RESULTS: Following cesarean section, the neonate was kept in strict isolation. Molecular tests for SARS-CoV-2 on respiratory samples, blood, and meconium were initially negative, but positive on a nasopharyngeal aspirate on the third day of life. On day 5, the neonate developed fever and coryza, which spontaneously resolved. Viral genomic analysis from the mother and neonate showed identical sequences except for 1 nucleotide. CONCLUSION: This report has important implications for infection control and clinical management of pregnant women with COVID-19 and their newborns.

1. **Prominent changes in blood coagulation of patients with SARS-CoV-2 infection**  
   Han H. Clinical Chemistry and Laboratory Medicine (CCLM) 2020;1:No page numbers.

1. **Protect Pregnant and Lactating Women with COVID-19 Through Research, Not from Research**  
   Stuebe A. Breastfeeding medicine : the official journal of the Academy of Breastfeeding Medicine 2020;15:423-424.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=b5872e6cbe457a1a2d0620bcb8584cfb)

1. **Protection Challenges of Pregnant Women against Vertical Transmission during COVID-19 Epidemic: A Narrative Review**  
   Hasnain M. American journal of infection control 2020;:No page numbers.

This paper presents a narrative review study of five popular data repositories focusing on challenges of pregnant women protection during the COVID-19 pandemic. The study concludes that the likelihood of a vertical transmission of COVID-19 infection from pregnant women to neonates was not observed. Nevertheless, it remains a serious risk for them during their earlier stage of pregnancy, thus, special attention from health professionals has been recommended. Copyright © 2020. Published by Elsevier Inc.

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1. **Protocol for evidence synthesis support - COVID-19**  
   Anon. Health Information and Quality Authority 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=06f453a1bf85d3d233bbb04e91a17b39)

1. **Rapid systematic review of neonatal COVID-19 including a case of presumed vertical transmission**  
   Gordon M. BMJ paediatrics open 2020;4:e000718.

Objective: To carry out a systematic review of the available studies on COVID-19 (coronavirus disease 2019) in neonates seen globally since the onset of the COVID-19 global pandemic in 2020. The paper also describes a premature baby with reverse transcription (RT)-PCR-positive COVID-19 seen at the Blackpool Teaching Hospitals NHS Foundation Trust, UK., Design: We conducted a multifaceted search of the Cumulative Index to Nursing and Allied Health Literature, Embase, Medline and PubMed from 1 December 2019 to 12 May 2020 to harvest articles from medical journals and publications reporting cases of COVID-19 in neonates from anywhere in the world. Additional searches were also done so as not to miss any important publications. Write-up was in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses, the protocol for the review was registered with International Prospective Register of Systematic Reviews (PROSPERO), and risk of bias was analysed with the Newcastle-Ottawa tool. Additionally, the preterm neonate with COVID-19 from our hospital is also reported., Results: The systematic review has revealed eight studies where neonates have been described to have confirmed COVID-19, with low risk of bias. Of the 10 reported cases elsewhere, only three are likely to be vertically transmitted, while seven occurred in the postperinatal period and are likely to have been postnatally acquired. All neonates had a mild course, recovered fully and were negative on retesting. Our case of COVID-19 in a 32-week premature baby from the UK was delivered by emergency caesarean section, with the mother wearing a face mask and the family having no contact with the neonate, suggesting vertical transmission. On day 33, the neonate was asymptomatic but was still RT-PCR-positive on nasopharyngeal airway swab., Conclusions: Neonatal infection is uncommon, with only two previously reported cases likely to be of vertical transmission. The case we report is still RT-PCR-positive on day 28 and is asymptomatic. Ongoing research is needed to ascertain the epidemiology of COVID-19 in neonates. Copyright © Author(s) (or their employer(s)) 2020. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

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1. **Rates of Maternal and Perinatal Mortality and Vertical Transmission in Pregnancies Complicated by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-Co-V-2) Infection: A Systematic Review**  
   Huntley B. J. F. Obstetrics and gynecology 2020;:No page numbers.

OBJECTIVE: To ascertain the frequency of maternal and neonatal complications, as well as maternal disease severity, in pregnancies affected by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection., DATA SOURCES: MEDLINE, Ovid, ClinicalTrials.gov, MedRxiv, and Scopus were searched from their inception until April 29, 2020. The analysis was limited to reports with at least 10 pregnant patients with SARS-CoV-2 infection that reported on maternal and neonatal outcomes., METHODS OF STUDY SELECTION: Inclusion criteria were pregnant women with a confirmed diagnosis of SARS-CoV-2 infection. A systematic search of the selected databases was performed by implementing a strategy that included the MeSH terms, key words, and word variants for "coronavirus," "SARS-CoV-2," "COVID-19," and "pregnancy.r The primary outcomes were maternal admission to the intensive care unit (ICU), critical disease, and death. Secondary outcomes included rate of preterm birth, cesarean delivery, vertical transmission, and neonatal death. Categorical variables were expressed as percentages with number of cases and 95% CIs., TABULATION, INTEGRATION, AND RESULTS: Of the 99 articles identified, 13 included 538 pregnancies complicated by SARS-CoV-2 infection, with reported outcomes on 435 (80.9%) deliveries. Maternal ICU admission occurred in 3.0% of cases (8/263, 95% CI 1.6-5.9) and maternal critical disease in 1.4% (3/209, 95% CI 0.5-4.1). No maternal deaths were reported (0/348, 95% CI 0.0-1.1). The preterm birth rate was 20.1% (57/284, 95% CI 15.8-25.1), the cesarean delivery rate was 84.7% (332/392, 95% CI 80.8-87.9), the vertical transmission rate was 0.0% (0/310, 95% CI 0.0-1.2), and the neonatal death rate was 0.3% (1/313, 95% CI 0.1-1.8)., CONCLUSION: With data from early in the pandemic, it is reassuring that there are low rates of maternal and neonatal mortality and vertical transmission with SARS-CoV-2. The preterm birth rate of 20% and the cesarean delivery rate exceeding 80% seems related to geographic practice patterns., SYSTEMATIC REVIEW REGISTRATION: PROSPERO, CRD42020181497.

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1. **Recommendations and Practical Management of Pregnant Women with Covid-19: A Scoping Review**  
   Torre H. G. Enferm Clin 2020;:No page numbers.

AIM: To compile recommendations and evidence on the practical management of pregnant women with COVIC-19 in order to clarify standards of obstetric care in the face of this new disease. METHODS: Scoping review based on literaature searches in national and international health science databases (Pubmed/Medline, Biblioteca virtual en salud (BVS), Scielo, COCHRANE and CUIDEN) and websites, and additionally by a "snowball" system. MeSH terms were used: "COVID-19", "Pregnancy", "Delivery, Obstetric" "Pregnant Women" and "Maternal". As limits in the search Spanish and English languages were selected. No limits were established in relation to the year of publication or type of article. RESULTS: A total of 49 documents and articles were detected, of which 27 were analyzed, 18 were used, and 9 were discarded because they did not contain practical recommendations. The recommendations were grouped into 9 subjects: Prevention of infection in pregnant women, Prevention of infection in health care personnel attending pregnant women, Form of presentation and severity in pregnant women, Maternal-fetal transmission (vertical and perinatal), Maternal-fetal control of the pregnant woman infected with COVID-19, Control of the severely pregnant woman with COVID-19, Treatment of the pregnant woman with COVID-19, Management and route of termination of labor, Neonatal outcomes in women with COVID-19 and Breastfeeding. CONCLUSIONS: Lack of strong evidence to support many of the recommendations for pregnant women with COVID-19, as they are based on previous experience with SARS-CoV and MERS-CoV infections. Further studies are needed to confirm the appropriateness of many of the recommendations and guidelines for action in the specific case of pregnant women and COVIC-19. Publisher: Abstract available from the publisher. spa

1. **Recommendations: Prehospital Emergency Medical Services (EMS) COVID-19**  
   Anon. WHO Coronavirus disease (COVID-19) Pandemic 2020;:No page numbers.

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1. **Registry of patients with congenital bleeding and COVID-19 in madrid**  
   Alvarez Roman M. T. Haemophilia : the official journal of the World Federation of Hemophilia 2020;:No page numbers.

INTRODUCTION: We present the first registry of patients with congenital bleeding disorders and COVID-19. The study has been carried out in the Community of Madrid, which has the highest number of cases in Spain. The objective is to understand the incidence of COVID-19, the course of the disease if it occurs and the psychosocial and occupational impact on this population., METHODS: We included 345 patients (246 of haemophilia, 69 of von Willebrand Disease, 2 rare bleeding disorders and 28 carriers of haemophilia). A telephone survey was used to collect the data., RESULTS: 42 patients presented symptoms suggestive of infection by COVID-19 and in 6 cases the disease was confirmed by RT-PCR. The cumulative incidence of our series was 1.73%. It is worth noting the complexity of the management of COVID-19 in two patients on prophylaxis with non-factor replacement therapy. Adherence to the prescribed treatment was maintained by 95.5% of patients. Although 94% were independent for daily living activities, 42.4% had a recognised disability and 58% required assistance, provided by the Madrid Haemophilia Association (Ashemadrid) in 75%of cases. Only 4.4% of consultations were held in person., CONCLUSIONS: Patients with congenital bleeding disorders infected with SARS-CoV-2presented a mild course of the disease that did not require admission. Their identification and treatment by a specialist team from a Haemophilia Treatment Center is essential to make a correct assessment of the risk of haemorrhage/thrombosis.COVID-19 had a major impact on the psychosocial aspects of these patients which must be remedied with recovery plans. Copyright This article is protected by copyright. All rights reserved.

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1. **Reply to "Potential challenges in managing obstetric patients with COVID-19"**  
   Yan J. Y. H. American journal of obstetrics and gynecology 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=3d32653b17200a4e812a182297dc37a6)

1. **Report of a series of healthy term newborns from convalescent mothers with COVID-19**  
   Perrone S. Acta bio-medica : Atenei Parmensis 2020;91:251-255.

BACKGROUND: The novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a highly transmittable virus associated with a significantly increased risk of complications among the infected population. Few data are available for the outcome of pregnancy complicated by serious respiratory disease due to SARS-CoV-2 infection., AIM: We herein report a series of four neonates whose mothers had recovered from new coronavirus 2019 disease (COVID-19) diagnosed in the third trimester of pregnancy., METHODS: pregnant women with documented COVID-19 infection during their pregnancy, who gave birth in Parma Hospital, University of Parma, Italy, in March and April 2020, during the peak of incidence of COVID-19 in Italy. Clinical records and laboratory tests were retrospectively reviewed., RESULTS: All neonates were delivered at term in good conditions without congenital COVID-19 infection., CONCLUSIONS: Findings from our series of cases indicated that adverse effects on foetuses from pregnancies complicated by COVID-19 infection in late pregnancy are unlikely.

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1. **Report of Positive Placental Swabs for SARS-CoV-2 in an Asymptomatic Pregnant Woman with COVID-19**  
   Ferraiolo A. Medicina (Kaunas, Lithuania) 2020;56:No page numbers.

Currently, limited data on maternal and neonatal outcomes of pregnant women with infection and pneumonia related to SARS coronavirus 2 (SARS-CoV-2) are available. Our report aims to describe a case of placental swabs positive for the molecular research on severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2 RNA in an asymptomatic woman with positive rhino-pharyngeal swab for SARS-CoV-2 who underwent an urgent cesarean section in our obstetrics unit. Sample collection, processing, and laboratory testing were conducted in accordance with the World Health Organization (WHO) guidance. In the next months, conclusive data on obstetrical outcomes concerning the gestational age and pregnancy comorbidity as well as the eventual maternal-fetal transmission are needed.

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1. **Review of the SARS-CoV-2 in Wuhan and Analysis as Well as Prediction of Therapeutic Drugs**  
   Zhang R. Viral Immunol 2020;:No page numbers.

Due to the worldwide impact of SARS-CoV-2, people have carried out in-depth research on the virus to fight against this highly contagious disease. In this article, many articles published recently are summarized vertically, from the structure and sites of SARS-Cov-2, the mode of transmission, the mathematical model of transmission, the mechanism of the virus itself, the symptoms of patients after infection to medicine used in the early stage period and the prediction as well the analysis of probability in using new medicine.

1. **Risk of Maternal Feacal Contamination and How to Reduce the Potential Risk of Vertical Transmission of SARS-Cov-2 during Vaginal Delivery?**  
   Carosso A. European Journal of Obstetrics & Gynecology and Reproductive Biology 2020;:No page numbers.

1. **Risks of Novel Coronavirus Disease (COVID-19) in Pregnancy; a Narrative Review**  
   Panahi L. Archives of academic emergency medicine 2020;8:e34.

Introduction: The outbreak of the new Coronavirus in China in December 2019 and subsequently in various countries around the world has raised concerns about the possibility of vertical transmission of the virus from mother to fetus. The present study aimed to review published literature in this regard., Methods: In this narrative review, were searched for all articles published in various databases including PubMed, Scopus, Embase, Science Direct, and Web of Science using MeSH-compliant keywords including COVID-19, Pregnancy, Vertical transmission, Coronavirus 2019, SARS-CoV-2 and 2019-nCoV from December 2019 to March 18, 2020 and reviewed them. All type of articles published about COVID-19 and vertical transmission in pregnancy were included., Results: A review of 13 final articles published in this area revealed that COVID-19 can cause fetal distress, miscarriage, respiratory distress and preterm delivery in pregnant women but does not infect newborns. There has been no report of vertical transmission in pregnancy, and it has been found that clinical symptoms of COVID-19 in pregnant women are not different from those of non-pregnant women., Conclusion: Overall, due to lack of appropriate data about the effect of COVID-19 on pregnancy, it is necessary to monitor suspected pregnant women before and after delivery. For confirmed cases both the mother and the newborn child should be followed up comprehensively.

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1. **Safe delivery for pregnancies affected by COVID-19**  
   Qi H. BJOG: An International Journal of Obstetrics and Gynaecology 2020;127:927-929.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=67eff23c6f3b6e7b792d8c766d70e07e)

1. **SARS-CoV, MERS-CoV and SARS-CoV-2 infections in pregnancy and fetal development**  
   de Souza Silva G. A. Journal of gynecology obstetrics and human reproduction 2020;:101846.

Recently, in China, in 2019, a new type of disease has arisen caused by a new strain of coronavirus, the SARS-CoV-2 virus, considered extremely worrying due to its high infectivity power and the easy ability to spread geographically. For patients in general, the clinical features resulting from respiratory syndromes can trigger an asymptomatic condition. However, 25 % of patients infected by SARS-CoV-2 can progress to severity. Pregnant women are an unknown field in this complex process, and although they have symptoms similar to non-pregnant women, some points should be considered, such as complications during pregnancy and postpartum. Thus, the aim of this study was to understand the consequences of pregnancy and fetal development, caused by infections by the SARS-CoV, MERS-CoV and SARS-CoV-2 viruses. Among the aforementioned infections, MERS-CoV seems to be the most dangerous for newborns, inducing high blood pressure, pre-eclampsia, pneumonia, acute renal failure, and multiple organ failure in mother. This also causes a higher occurrence of emergency cesarean deliveries and premature births, in addition, some deaths of mothers and fetuses were recorded. Meanwhile, SARS-CoV and SARS-CoV-2 appear to have less severe symptoms. Furthermore, although a study found the ACE2 receptor, used by SARS-CoV-2, widely distributed in specific cell types of the maternal-fetal interface, there is no evidence of vertical transmission for any of the coronaviruses. Thus, the limited reported obstetric cases alert to the need for advanced life support for pregnant women infected with coronaviruses and to the need for further investigation for application in clinical practice. Copyright © 2020 Elsevier Masson SAS. All rights reserved.

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1. **SARS-CoV-2 and human milk: What is the evidence?**  
   Lackey K. A. Maternal & child nutrition 2020;:e13032.

The novel coronavirus SARS-CoV-2 has emerged as one of the most compelling and concerning public health challenges of our time. To address the myriad issues generated by this pandemic, an interdisciplinary breadth of research, clinical and public health communities has rapidly engaged to collectively find answers and solutions. One area of active inquiry is understanding the mode(s) of SARS-CoV-2 transmission. Although respiratory droplets are a known mechanism of transmission, other mechanisms are likely. Of particular importance to global health is the possibility of vertical transmission from infected mothers to infants through breastfeeding or consumption of human milk. However, there is limited published literature related to vertical transmission of any human coronaviruses (including SARS-CoV-2) via human milk and/or breastfeeding. Results of the literature search reported here (finalized on 17 April 2020) revealed a single study providing some evidence of vertical transmission of human coronavirus 229E; a single study evaluating presence of SARS-CoV in human milk (it was negative); and no published data on MERS-CoV and human milk. We identified 13 studies reporting human milk tested for SARS-CoV-2; one study (a non-peer-reviewed preprint) detected the virus in one milk sample, and another study detected SARS-CoV-2 specific IgG in milk. Importantly, none of the studies on coronaviruses and human milk report validation of their collection and analytical methods for use in human milk. These reports are evaluated here, and their implications related to the possibility of vertical transmission of coronaviruses (in particular, SARS-CoV-2) during breastfeeding are discussed. Copyright © 2020 The Authors. Maternal & Child Nutrition published by John Wiley & Sons Ltd.

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1. **SARS-CoV-2 entry genes are most highly expressed in nasal goblet and ciliated cells within human airways**  
   Sungnak W. arXiv preprint arXiv:2003.06122 2020;:No page numbers.

1. **SARS-CoV-2 Infection and COVID-19 During Pregnancy: A Multidisciplinary Review**  
   Narang K. Mayo Clinic Proceedings 2020;:No page numbers.

1. **SARS-CoV-2 Infection and the Newborn**  
   Ovali F. Frontiers in Pediatrics 2020;8:294.

Severe Acute Respiratory Syndrome Coronavirus Type 2 (SARS-CoV-2) affects people at all ages and it may be encountered in pregnant women and newborns also. The information about its clinical features, laboratory findings and prognosis in children and newborns is scarce. All the reported cases in pregnant women were in the 2nd or 3rd trimester and only 1% of them developed severe disease. Miscarriages are rare. Materno-fetal transmission of the disease is controversial. Definitive diagnosis can be made by a history of contact with a proven case, fever, pneumonia and gastrointestinal disorder and a Polymerase chain reaction (PCR) test of nasopharyngeal swabs. Lymphopenia as well as liver and renal dysfunctions may be seen. Suspected or proven cases of newborns with symptoms should be quarantined in the neonatal intensive care unit for at least 14 days with standart and droplet isolation precautions. Asymptomatic infants may be quaratined at home. Transport of the neonates should be performed in a dedicated transport incubator and ambulance with isolation precautions. There is no specific treatment for the disease, but hemodynamic stabilization of the infant, respiratory management and other daily care are essential. Drugs against cytokine storm syndrome such as corticosteroids or tocilizumab are under investigation. Routine antibiotics are not recommended. No deaths have been reported so far in the neonatal population. Families and healthcare staff should receive pyschological support. Since the infection is quite new and knowledge is constantly accumulating, following developments and continuous updates are crucial.© Copyright © 2020 Ovali.

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1. **SARS-CoV-2 infection during pregnancy. Information and proposal of management care. CNGOF**  
   Peyronnet V. Infection par le SARS-CoV-2 chez les femmes enceintes : etat des connaissances et proposition de prise en charge par CNGOF. 2020;48:436-443.

A new coronavirus (SARS-CoV-2) highlighted at the end of 2019 in China is spreading across all continents. Most often at the origin of a mild infectious syndrome, associating mild symptoms (fever, cough, myalgia, headache and possible digestive disorders) to different degrees, SARS-Covid-2 can cause serious pulmonary pathologies and sometimes death. Data on the consequences during pregnancy are limited. The first Chinese data published seem to show that the symptoms in pregnant women are the same as those of the general population. There are no cases of intrauterine maternal-fetal transmission, but cases of newborns infected early suggest that there could be vertical perpartum or neonatal transmission. Induced prematurity and cases of respiratory distress in newborns of infected mothers have been described. Pregnancy is known as a period at higher risk for the consequences of respiratory infections, as for influenza, so it seems important to screen for Covid-19 in the presence of symptoms and to monitor closely pregnant women. In this context of the SARS-Covid-2 epidemic, the societies of gynecology-obstetrics, infectious diseases and neonatalogy have proposed a French protocol for the management of possible and proven cases of SARS-Covid-2 in pregnant women. These proposals may evolve on a daily basis with the advancement of the epidemic and knowledge in pregnant women. Subsequently, an in-depth analysis of cases in pregnant women will be necessary in order to improve knowledge on the subject. Copyright © 2020 Elsevier Masson SAS. All rights reserved.

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1. **SARS-CoV-2 infection in children: Transmission dynamics and clinical characteristics**  
   Cao Q. J Formos Med Assoc 2020;119:670-673.

1. **SARS-CoV-2 infection in neonate: What do we know so far?**  
   Moscoso J. Acta Medica Portuguesa 2020;33:444.

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1. **SARS-CoV-2 Infection in Pregnancy - a Review of the Current Literature and Possible Impact on Maternal and Neonatal Outcome**  
   Stumpfe F. M. Geburtshilfe und Frauenheilkunde 2020;80:380-390.

In December 2019, cases of pneumonia of unknown cause first started to appear in Wuhan in China; subsequently, a new coronavirus was soon identified as the cause of the illness, now known as Coronavirus Disease 2019 (COVID-19). Since then, infections have been confirmed worldwide in numerous countries, with the number of cases steadily rising. The aim of the present review is to provide an overview of the new severe acute respiratory syndrome (SARS) coronavirus 2 (SARS-CoV-2) and, in particular, to deduce from it potential risks and complications for pregnant patients. For this purpose, the available literature on cases of infection in pregnancy during the SARS epidemic of 2002/2003, the MERS (Middle East respiratory syndrome) epidemic ongoing since 2012, as well as recent publications on cases infected with SARS-CoV-2 in pregnancy are reviewed and reported. Based on the literature available at the moment, it can be assumed that the clinical course of COVID-19 disease may be complicated by pregnancy which could be associated with a higher mortality rate. It may also be assumed at the moment that transmission from mother to child in utero is unlikely. Breastfeeding is possible once infection has been excluded or the disease declared cured.

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1. **SARS-CoV-2 infection of the placenta**  
   Hosier H. J Clin Invest 2020;:No page numbers.

BACKGROUND: The effects of Covid-19 in pregnancy remain relatively unknown. We present a case of second trimester pregnancy with symptomatic Covid-19 complicated by severe preeclampsia and placental abruption. METHODS: We analyzed placenta for the presence of SARS-CoV-2 through molecular and immunohistochemical assays and by and electron microscopy, and we measured the maternal antibody response in blood to this infection. RESULTS: SARS-CoV-2 localized predominantly to syncytiotrophoblast cells at the maternal-fetal interface of the placenta. Histological examination of the placenta revealed a dense macrophage infiltrate, but no evidence for vasculopathy typically associated with preeclampsia. CONCLUSION: This case demonstrates SARS-CoV-2 invasion of the placenta, highlighting the potential for severe morbidity among pregnant women with Covid-19.

1. **SARS-CoV-2 is not detectable in the vaginal fluid of women with severe COVID-19 infection**  
   Qiu L. Clinical Infectious Diseases 2020;:No page numbers.

1. **SARS-CoV-2 placental infection and inflammation leading to fetal distress and neonatal multi-organ failure in an asymptomatic woman**  
   Schoenmakers S. S. P. V. R. K. T. K. S. K. L. K. T. R. M. B. M. S. E. K. M. F. P. R. I. Medrxiv 2020;:2020.2006.2008.20110437.

Introduction In general SARS-CoV-2-infection during pregnancy is not considered to be an increased risk for severe maternal outcomes, but has been associated with an increased risk for fetal distress. So far, there is no direct evidence of intrauterine vertical transmission and the mechanisms leading to the adverse outcomes are not well understood Results An asymptomatic pregnant woman with preterm fetal distress during the COVID19 pandemic was included. We obtained multiple maternal, placental and neonatal swabs, which showed a median viral load in maternal blood, urine, oropharynx, fornix posterior over a period of 6 days was 5.0 log copies /mL. The maternal side of the placenta had a viral load of 4.42 log copies /mL, while the fetal side had 7.15 log copies /mL. Maternal breast milk, feces and all neonatal samples tested negative. Serology of immunoglobulins against SARS-CoV-2 was tested positive in maternal blood, but negative in umbilical cord and neonatal blood. Pathological examination of the placenta included immunohistochemical investigation against SARS-CoV-2 antigen expression in combination with SARS-CoV-2 RNA in situ hybridization and transmission electron microscopy. It showed the presence of SARS-CoV-2 particles with generalized inflammation characterized by histiocytic intervillositis with diffuse perivillous fibrin depositions with damage to the syncytiotrophoblasts. Discussion Placental infection by SARS-CoV-2 lead to fibrin depositions hampering fetal-maternal gas exchange most likely resulted in fetal distress necessitating a premature emergency caesarean section. Postpartum, the neonate showed a clinical presentation resembling a pediatric inflammatory multisystem syndrome including coronary artery ectasia, most likely associated with SARS-CoV-2 (PIMS-TS) for which admittance and care on the Neonatal Intensive Care unit (NICU) was required, despite being negative for SARS-CoV-2. This highlights the need for awareness of adverse fetal and neonatal outcomes during the current COVID-19 pandemic, especially considering that the majority of pregnant women appear asymptomatic.Competing Interest StatementThe authors have declared no competing interest.Funding StatementNoneAuthor DeclarationsI confirm all relevant ethical guidelines have been followed, and any necessary IRB and/or ethics committee approvals have been obtained.YesThe details of the IRB/oversight body that provided approval or exemption for the research described are given below:Erasmus MC University Medical Center, Rotterdam, The NetherlandsAll necessary patient/participant consent has been obtained and the appropriate institutional forms have been archived.YesI understand that all clinical trials and any other prospective interventional studies must be registered with an ICMJE-approved registry, such as ClinicalTrials.gov. I confirm that any such study reported in the manuscript has been registered and the trial registration ID is provided (note: if posting a prospective study registered retrospectively, please provide a statement in the trial ID field explaining why the study was not registered in advance).Yes I have followed all appropriate research reporting guidelines and uploaded the relevant EQUATOR Network research reporting checklist(s) and other pertinent material as supplementary files, if applicable.Yesn.a. [Preprints are preliminary reports of work that have not been peer reviewed. Refer to the original preprint or preprint server for specific information about the individual preprint.]

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1. **SARS-CoV-2, More than a Respiratory Virus: Its Potential Role in Neuropathogenesis**  
   Singal C. M. S. ACS chemical neuroscience 2020;11:1887-1899.

The coronavirus disease-19 (COVID-19) pandemic has emerged as one of the major outbreaks to be mentioned in history in coming times. Like severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS), severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) is a respiratory virus infecting the lungs with fever, dry cough, and acute pneumonia being the major symptoms. It infects epithelial cells expressing angiotensin converting enzyme 2 (ACE2) receptor, which is crucial for viral entry. Based on evolving clinical evidence, it is now unfitting to label SARS-CoV-2 as just a respiratory virus, as lately there are various reports that substantiate its pathogenicity in other organs of the body, including brain. In this review, we discuss the epidemiology of SARS-CoV-2 in comparison to SARS and MERS along with possibilities of viral entry into central nervous system (CNS) tissues. The review provides detailed information about the virulence, epidemiology, and insights into molecular pathways involved in the infectivity of the SARS-CoV-2 virus, along with an in-depth view of current concepts about the neurological significance of the SARS-CoV-2 virus and its neuropathological competence. The review also touches upon our current understanding of placental transmission of SARS-CoV-2, an important aspect of vertical transmission. Furthermore, the review provides a current update on strategies that have been used, are being used, or are under trial for treating the disease.

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1. **SARS-CoV-2: Is it the newest spark in the TORCH?**  
   Muldoon K. M. Journal of clinical virology : the official publication of the Pan American Society for Clinical Virology 2020;127:104372.

Amid the rapidly evolving global coronavirus disease 2019 (COVID-19) pandemic that has already had profound effects on public health and medical infrastructure globally, many questions remain about its impact on child health. The unique needs of neonates and children, and their role in the spread of the virus (severe acute respiratory syndrome coronavirus 2 [SARS-CoV-2]) should be included in preparedness and response plans. Fetuses and newborn infants may be uniquely vulnerable to the damaging consequences of congenitally- or perinatally-acquired SARS-CoV-2 infection, but data are limited about outcomes of COVID-19 disease during pregnancy. Therefore, information on illnesses associated with other highly pathogenic coronaviruses (i.e., severe acute respiratory syndrome (SARS) and the Middle East respiratory syndrome [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. 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. Copyright © 2020 Elsevier B.V. All rights reserved.

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1. **SARS‐CoV2 (COVID‐19) infection: is fetal surgery in times of national disasters reasonable?**  
   Deprest J. Prenatal Diagnosis 2020;:No page numbers.

1. **Sars‐CoV‐2 in the context of past coronaviruses epidemics: Consideration for prenatal care**  
   Lambelet V. Prenatal diagnosis 2020;:No page numbers.

1. **Second-Trimester Miscarriage in a Pregnant Woman With SARS-CoV-2 Infection**  
   Baud D. Jama-Journal of the American Medical Association 2020;323:2198-2200.

This case report describes a pregnant woman with symptomatic coronavirus disease who experienced a second-trimester miscarriage in association with documented placental SARS-CoV-2 infection.

1. **Several considerations on the establishment of a new public health and preventive medicine system in national level**  
   Li Y. Zhonghua Yu Fang Yi Xue Za Zhi 2020;:No page numbers.

Based on the new mission of public health set in the Healthy China strategy and the insufficient response to COVID-19, this article pointed out the problems of the current public health and preventive medicine system from the macro-system level, meso-organization level, and micro-individual level, including insufficient strategic planning, resource input, institutional coordination, talent training and team building. It was creatively proposed that a disease prevention and control bureau should be set up outside the health commission to implement the vertical management at four levels, from national level to province-level, including autonomous region, municipality directly under the central government, city-level and district/county-level. The disease prevention and control bureau should consist of a strategic research institute, a center for disease prevention and control (CDC), a human resources training base, and a scientific research institute, which could perform their own duties and rely on each other. Enhancing the functions of strategic planning, overall coordination, and evidence-based decision-making in the original system, emphasizing the foresight and continuity of scientific research, and allowing the CDC to focus more on health management and emergency response could better facilitate in protecting the public health, improving the health and quality of life of the entire population, and guaranteeing the social stability and development.

1. **Severe acute respiratory syndrome coronavirus 19 and human pregnancy**  
   Perez-Lopez F. R. Gynecological Endocrinology 2020;36:277-278.

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1. **Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Infection During Pregnancy In China: a Retrospective Cohort Study**  
   Yin M. Z. L. D. G. H. C. S. M. S. H. Z. F. Z. W. C. L. L. Q. Y. D. W. M. Y. S. Medrxiv 2020;:2020.2004.2007.20053744.

Background Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has been identified as the cause of the ongoing worldwide epidemic of Coronavirus Disease 2019 (COVID-19) in China and worldwide. However, there were few studies about the effects of SARS-CoV-2 infection on pregnant women. Methods In this retrospective cohort study, we enrolled 31 pregnant women and 35 non-pregnant women from Jan 28 to Feb 28, 2020 to evaluate the effects of SARS-CoV-2 infection during pregnancy. Inflammatory indices were used to assess the severity of COVID-19. Evidence of vertical transmission was determined by laboratory confirmation of SARS-CoV-2 in amniotic fluid, placenta, neonatal throat and anal swab and breastmilk samples. Findings Compared with non-pregnant women, pregnant women had a significantly lower proportion of fever (54.8% vs. 87.5%, p= 0.006), a shorter average interval from onset to hospitalization, and a higher proportion of severe or critical COVID-19 (32.3% vs. 11.4%, p=0.039). Neutrophil-to-lymphocyte ratio (NLR) and systematic immune-inflammation-based prognostic index (SII) were significantly higher on admission in severe/critical pneumonia group than moderate pneumonia group. We could not detect the presence of SARS-CoV-2 by RT-PCR in amniotic fluid, placenta, neonatal throat and anal swab and breastmilk samples. Conclusions The clinical symptoms of COVID-19 in pregnant women were insidious and atypical, compared with those in non-pregnant patients. SII and NLR could be a useful marker to evaluate the severity of COVID-19. There was no evidence of vertical transmission during pregnancy with SARS-CoV-2 infection.Competing Interest StatementThe authors have declared no competing interest.Clinical TrialNoneFunding StatementThis study was supported by grants from the General Program the National Natural Science Foundation of China (81874138) and Research Funds for the Central Universities (2020kfyXGYJ008).Author DeclarationsAll relevant ethical guidelines have been followed; any necessary IRB and/or ethics committee approvals have been obtained and details of the IRB/oversight body are included in the manuscript.YesAll necessary patient/participant consent has been obtained and the appropriate institutional forms have been archived.YesI understand that all clinical trials and any other prospective interventional studies must be registered with an ICMJE-approved registry, such as ClinicalTrials.gov. I confirm that any such study reported in the manuscript has been registered and the trial registration ID is provided (note: if posting a prospective study registered retrospectively, please provide a statement in the trial ID field explaining why the study was not registered in advance).Yes I have followed all appropriate research reporting guidelines and uploaded the relevant EQUATOR Network research reporting checklist(s) and other pertinent material as supplementary files, if applicable.YesAll data referred to in the manuscript Preprints are preliminary reports of work that have not been peer reviewed. Refer to the original preprint or preprint server for specific information about the individual preprint.

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1. **Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection in children and adolescents: a systematic review**  
   Castagnoli R. JAMA pediatrics 2020;:No page numbers.

1. **Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Vertical Transmission in Neonates Born to Mothers With Coronavirus Disease 2019 (COVID-19) Pneumonia**  
   Hu X. Obstetrics and gynecology 2020;136:65-67.

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1. **Severe acute respiratory syndrome coronavirus 2(SARS-CoV-2) infection during late pregnancy: a report of 18 patients from Wuhan, China**  
   Zhang L. BMC pregnancy and childbirth 2020;20:394.

BACKGROUND: Compared with Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS), Corona Virus Disease 2019(COVID-19) spread more rapidly and widely. The population was generally susceptible. However, reports on pregnant women infected with SARS-CoV-2 were very limited. By sharing the clinical characteristics, treatments and outcomes of 18 patients with COVID-19 during late pregnancy, we hope to provide some references for obstetric treatment and management., METHODS: A total of 18 patients with COVID-19 treated at Renmin Hospital of Wuhan University were collected. The epidemiological characteristics, clinical manifestations, laboratory tests, chest CT and pregnancy outcomes were performed for analysis., RESULTS: 1. 18 cases of late pregnancy infected with SARS-CoV-2 pneumonia were delivered at 35 + 5 weeks to 41 weeks. According to the clinical classification of COVID-19, 1 case was mild type, 16 cases were ordinary type, and 1 case was severe type. 2. According to imaging examinations: 15 (83%) cases showed unilateral or bilateral pneumonia, 2 (11%) cases had pulmonary infection with pleural effusion, and 1 (6%) case had no abnormal imaging changes. 8 (44%) cases were positive and 10 (56%) cases were negative for nasopharyngeal-swab tests of SARS-CoV-2. 3. Among the 18 newborns, there were 3 (17%) premature infants, 1 (6%) case of mild asphyxia, 5 (28%) cases of bacterial pneumonia, 1 (6%) case of gastrointestinal bleeding, 1 (6%) case of necrotizing enteritis, 2 (11%) cases of hyperbilirubinemia and 1 (6%) case of diarrhea. All the newborns were negative for the first throat swab test of SARS-CoV-2 after birth. 4. Follow-up to Mar 7, 2020, no maternal and neonatal deaths occurred., CONCLUSIONS: The majority of patients in late term pregnancy with COVID-19 were of ordinary type, and they were less likely to develop into critical pneumonia after early isolation and antiviral treatment. Vertical transmission of SARS-CoV-2 was not detected, but the proportion of neonatal bacterial pneumonia was higher than other neonatal diseases in newborns.

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1. **Severe Coronavirus Infections in Pregnancy: A Systematic Review**  
   Galang R. R. Obstetrics and gynecology 2020;:No page numbers.

OBJECTIVE: To inform the current coronavirus disease 2019 (COVID-19) outbreak, we conducted a systematic literature review of case reports of Middle East respiratory syndrome coronavirus (MERS-CoV), severe acute respiratory syndrome coronavirus (SARS-CoV), and severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes COVID-19, during pregnancy and summarized clinical presentation, course of illness, and pregnancy and neonatal outcomes., DATA SOURCES: We searched MEDLINE and ClinicalTrials.gov from inception to April 23, 2020., METHODS OF STUDY SELECTION: We included articles reporting case-level data on MERS-CoV, SARS-CoV, and SARS-CoV-2 infection in pregnant women. Course of illness, indicators of severe illness, maternal health outcomes, and pregnancy outcomes were abstracted from included articles., TABULATION, INTEGRATION, AND RESULTS: We identified 1,328 unique articles, and 1,253 articles were excluded by title and abstract review. We completed full-text review on 75, and 29 articles were excluded by full-text review. Among 46 publications reporting case-level data, eight described 12 cases of MERS-CoV infection, seven described 17 cases of SARS-CoV infection, and 31 described 98 cases of SARS-CoV-2 infection. Clinical presentation and course of illness ranged from asymptomatic to severe fatal disease, similar to the general population of patients. Severe morbidity and mortality among women with MERS-CoV, SARS-CoV, or SARS-CoV-2 infection in pregnancy and adverse pregnancy outcomes, including pregnancy loss, preterm delivery, and laboratory evidence of vertical transmission, were reported., CONCLUSION: Understanding whether pregnant women may be at risk for adverse maternal and neonatal outcomes from severe coronavirus infections is imperative. Data from case reports of SARS-CoV, MERS-CoV, and SAR-CoV-2 infections during pregnancy are limited, but they may guide early public health actions and clinical decision-making for COVID-19 until more rigorous and systematically collected data are available. The capture of critical data is needed to better define how this infection affects pregnant women and neonates. This review was not registered with PROSPERO.

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1. **Severe COVID-19 during Pregnancy and Possible Vertical Transmission**  
   Alzamora M. C. American journal of perinatology 2020;37:861-865.

There are few cases of pregnant women with novel corona virus 2019 (COVID-19) in the literature, most of them with a mild illness course. There is limited evidence about in utero infection and early positive neonatal testing. A 41-year-old G3P2 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, 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 severe acute respiratory syndrome-coronavirus 2 (SARS-CoV-2) real-time polymerase chain reaction (RT-PCR), and immunoglobulin (Ig)-M and IgG for SARS-CoV-2 were negative. Maternal IgM and IgG were positive on postpartum day 4 (day 9 after symptom onset). We report a severe presentation of COVID-19 during pregnancy. To our knowledge, this is the earliest reported positive PCR in the neonate, raising the concern for vertical transmission. We suggest pregnant women should be considered as a high-risk group and minimize exposures for these reasons. KEY POINTS: . We report a severe presentation of COVID-19 in pregnancy requiring invasive ventilatory support.. . This is a case of positive RT-PCR in first day of life, suggesting possible vertical transmission.. . There were no detectable maternal antibodies for COVID-19 until after delivery.. Copyright Thieme Medical Publishers 333 Seventh Avenue, New York, NY 10001, USA.

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1. **Should Infants Be Separated from Mothers with COVID-19? First, Do No Harm**  
   Stuebe A. Breastfeeding medicine : the official journal of the Academy of Breastfeeding Medicine 2020;15:351-352.

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1. **Single-cell RNA expression profiling of ACE2 and AXL in the human maternal-Fetal interface**  
   Zheng Q. L. Reproductive and Developmental Medicine 2020;4:7-10.

2019 novel coronavirus disease has resulted in thousands of critically ill patients in China, which is a serious threat to people's life and health. Severe acute respiratory syndrome-coronavirus 2 (SARS-CoV-2) was reported to share the same receptor, angiotensin-converting enzyme 2 (ACE2), with SARS-CoV. Here, based on the public single-cell RNA-sequencing database, we analyzed the mRNA expression profile of putative receptor ACE2 and AXL receptor tyrosine kinase (AXL) in the early maternal-fetal interface. The result indicates that the ACE2 has very low expression in the different cell types of early maternal-fetal interface, except slightly high in decidual perivascular cells cluster 1 (PV1). Interestingly, we found that the Zika virus (ZIKV) receptor AXL expression is concentrated in perivascular cells and stromal cells, indicating that there are relatively more AXL-expressing cells in the early maternal-fetal interface. This study provides a possible infection route and mechanism for the SARS-CoV-2- or ZIKV-infected mother-to-fetus transmission disease, which could be informative for future therapeutic strategy development. Zheng Qing-Liang 1 Clinical and Translational Research Center, Shanghai First Maternity and Infant Hospital, Tongji University School of Medicine, Shanghai 201204 Duan Tao 2 Clinical and Translational Research Center, Shanghai First Maternity and Infant Hospital, Tongji University School of Medicine, Shanghai 201204 Jin Li-Ping 3 Clinical and Translational Research Center, Shanghai First Maternity and Infant Hospital, Tongji University School of Medicine, Shanghai 201204 Wang W, Tang J, Wei F. Updated understanding of the outbreak of 2019 novel coronavirus (2019-nCoV) in Wuhan, China. J Med Virol 2020. [Ahead of print]. doi: 10.1002/jmv.25689. Chen H, Guo J, Wang C, Luo F, Yu X, Zhang W, et al. Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: A retrospective review of medical records. Lancet 2020. [Ahead of print]. doi: 10.1016/S0140-6736(20) 30360-3. Xu X, Chen P, Wang J, Feng J, Zhou H, Li X, et al. Evolution of the novel coronavirus from the ongoing Wuhan outbreak and modeling of its spike protein for risk of human transmission. Sci China Life Sci 2020. [Ahead of print]. doi: 10.1007/s11427-020-1637-5. Li W, Sui J, Huang IC, Kuhn JH, Radoshitzky SR, Marasco WA, et al. The S proteins of human coronavirus NL63 and severe acute respiratory syndrome coronavirus bind overlapping regions of ACE2. Virology 2007;367:367-74. doi: 10.1016/j.virol.2007.04.035. Ferreira LM, Meissner TB, Tilburgs T, Strominger JL. HLA-G: At the interface of maternal-fetal tolerance. Trends Immunol 2017;38:272-86. doi: 10.1016/j.it.2017.01.009. Picelli S, Faridani OR, Bjorklund AK, Winberg G, Sagasser S, Sandberg R. Full-length RNA-seq from single cells using Smart-seq2. Nat Protoc 2014;9:171-81. doi: 10.1038/nprot.2014.006. Vento-Tormo R, Efremova M, Botting RA, Turco MY, Vento-Tormo M, Meyer KB, et al. Single-cell reconstruction of the early maternal-fetal interface in humans. Nature 2018;563:347-53. doi: 10.1038/s41586-018-0698-6. Zhao Y, Zhao Z, Wang Y, Zhou Y, Ma Y, Zuo W. Single-cell RNA expression profiling of ACE2, the putative receptor of Wuhan 2019-nCov. BioRxiv 2020. [Ahead of print]. doi: 10.1101/2020.01.26.919985. Lazear HM, Diamond MS. Zika virus: New clinical syndromes and its emergence in the western hemisphere. J Virol 2016;90:4864-75. doi: 10.1128/JVI.00252-16. Petersen LR, Jamieson DJ, Powers AM, Honein MA. Zika virus. N Engl J Med 2016;374:1552-63. doi: 10.1056/NEJMra1602113. Rasmussen SA, Jamieson DJ, Honein MA, Petersen LR. Zika virus and birth defects - Reviewing the evidence for causality. N Engl J Med 2016;374:1981-7. doi: 10.1056/NEJMsr1604338. Brasil P, Pereira JP Jr., Moreira ME, Ribeiro Nogueira RM, Damasceno L, Wakimoto M, et al. Zika virus infection in pregnant women in Rio de Janeiro. N Engl J Med 2016;375:2321-34. doi: 10.1056/NEJMoa1602412. Tabata T, Petitt M, Puerta-Guardo H, Michlmayr D, Wang C, Fang-Hoover J, et . Zika virus targets different primary human placental cells, suggesting two routes for vertical transmission. Cell Host Microbe 2016;20:155-66. doi: 10.1016/j.chom.2016.07.002. Quicke KM, Bowen JR, Johnson EL, McDonald CE, Ma H, O'Neal JT, et al. Zika virus Infects Human Placental Macrophages. Cell Host Microbe 2016;20:83-90. doi: 10.1016/j.chom.2016.05.015.Copyright © 2020 Reproductive and Developmental Medicine Published by Wolters Kluwer - Medknow.

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1. **Sonographic signs and patterns of COVID-19 pneumonia**  
   Volpicelli G. Ultrasound J 2020;:No page numbers.

The pandemic of COVID-19 is seriously challenging the medical organization in many parts of the world. This novel corona virus SARS-CoV-2 has a specific tropism for the low respiratory airways, but causes severe pneumonia in a low percentage of patients. However, the rapid spread of the infection during this pandemic is causing the need to hospitalize a high number of patients. Pneumonia in COVID-19 has peculiar features and can be studied by lung ultrasound in the early approach to suspected patients. The sonographic signs are non-specific when considered alone, but observation of some aspects of vertical artifacts can enhance the diagnostic power of the ultrasound examination. Also, the combination of sonographic signs in patterns and their correlation with blood exams in different phenotypes of the disease may allow for a reliable characterization and be of help in triaging and admitting patients.

1. **Strategies to control and prevent novel coronavirus 2019: A quick overview**  
   Muhammad A. Journal of the Liaquat University of Medical and Health Sciences 2020;19:1-5.

The emergence of Novel Coronavirus (2019-nCoV) in the Wuhan City of China and its rapid shedding among countries, which reminded the history of Severe Acute Respiratory Syndrome (SARS) happened almost two decades ago. However, the genome sequence of 2019-nCoV shared within few days of outbreak shows the better response of China and the world against the virus, perhaps due to the availability of advanced technology and lesson learned from previous epidemics. The researchers trying to determine the virulence, pathogenicity and transmission of 2019-nCoV. It is believed that disease reporting and data sharing about the emerged Coronavirus with international researchers are important steps to reduce the spread of the virus to the rest of the world. This report is aimed to understand the current status of the 2019-nCoV, problems related to it and possible measures for prevention. The infection may spread through wildlife and asymptomatic patients. People in underdeveloped countries having no basic facilities are at higher risk. Ban on wildlife trade and avoiding unnecessary traveling for a certain period is required to minimize the spread of the disease. The use of face masks, keeping away from the public gathering are other possible means of precautions, capacity building of health workers and provided relevant facilities (equipment, kits, etc.) to underdeveloped countries will further help to contain the pandemic. In the current scenario, it is concluded that 2019-nCoV is spreading irrespective of the borders and become pandemic. Extensive research is a cry of the day to contain the virus and curtail human losses.Copyright © 2020, Liaquat University of Medical and Health Sciences. All rights reserved.

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1. **Study for the impact on fetus and neonates of vertical transmission of 2019-nCoV**  
   Union Hospital Tmc H. U. o S. Ictrp 2020;:No page numbers.

Objectives: 1. To verify whether the vertical transmission is one of the route of COVID-19 between mother and fetus/neonates; 2. To study the impact of COVID-19 in pregnancy on the health condition of fetus or neonates. Inclusion criteria: Pregnant women confirmed with COVID-19 and admitted in our department from February,2020 to August, 2020

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1. **Study of Viral Load and Maternal-fetal Serology in the Interpretation of the Vertical Transmission of SARS Cov-2 (COVID-19) During Pregnancy**  
   Centre Hospitalier Universitaire de B. ClinicalTrials.gov 2020;:No page numbers.

The study evaluates the distribution of immunological and virological profiles of newborns patients. Mothers of these children have a proven infection to SARS Cov-2 during pregnancy.

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1. **Study on Safety and Efficacy of Favipiravir (Favipira) for COVID-19 Patient in Selected Hospitals of Bangladesh**  
   Bangladesh Medical Research C. ClinicalTrials.gov 2020;:No page numbers.

A recent outbreak of coronavirus disease 2019 (COVID-19) caused by the novel coronavirus designated as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) started in Wuhan, China, at the end of 2019. The clinical characteristics of COVID-19 include respiratory symptoms, fever, cough, dyspnea, and pneumonia. As of 25 February 2020, at least 77 785 cases and 2666 deaths had been identified across China and in other countries; in particular, 977 and 861 cases were identified in South Korea and Japan, respectively. The outbreak has already caused global alarm. On 30 January 2020, the World Health Organization (WHO) declared that the outbreak of SARS-CoV-2 constituted a Public Health Emergency of International Concern (PHEIC), and issued advice in the form of temporary recommendations under the International Health Regulations (IHR).It has been revealed that SARS-CoV-2 has a genome sequence that is 75%-80% identical to that of SARS-CoV, and has more similarities to several bat coronaviruses. SARS-CoV-2 is the seventh reported human-infecting member of the family Coronaviridae, which also includes SARS-CoV and the Middle East respiratory syndrome (MERS)-CoV. It has been identified as the causative agent of COVID-19. Both the clinical and the epidemiological features of COVID-19 patients demonstrate that SARS-CoV-2 infection can lead to intensive care unit (ICU) admission and high mortality. About 16%-21% of people with the virus in China have become severely ill, with a 2%-3% mortality rate. However, there is no specific treatment against the new virus. Therefore, it is urgently necessary to identify effective antiviral agents to combat the disease and explore the clinical effect of antiviral drugs. One efficient approach to discover effective drugs is to test whether the existing antiviral drugs are effective in treating other related viral infections. Several drugs, such as ribavirin, interferon (IFN), Favipiravir (FPV), and Lopinavir (LPV)/ritonavir (RTV), have been used in patients with SARS or MERS, although the efficacy of some drugs remains controversial. It has recently been demonstrated that, as a prodrug, Favipiravir (half maximal effective concentration (EC50) = 61.88 μmol·L−1, half-maximal cytotoxic concentration (CC50) > 400 μmol·L−1, selectivity index (SI) > 6.46) effectively inhibits the SARS-CoV-2 infection in Vero E6 cells (ATCC-1586). Furthermore, other reports show that FPV is effective in protecting mice against Ebola virus challenge, although its EC50 value in Vero E6 cells was as high as 67 μmol·L−1. Therefore, clinical studies are urgently needed to evaluate the efficacy and safety of this antiviral nucleoside for COVID-19 treatment. After enrollment of the patients (day 1) depending on inclusion and exclusion criteria and laboratory findings confirming the presence of the COVID-19 virus, 25 patients will receive Favipiravir plus standard treatment and the second group of 25 patients will receive standard treatment only. The comparison of the findings of the follow up studies on days 4, 7, and 10 in terms of clinical manifestations, chest X-ray and laboratory findings, such as Real Time Polymerase Chain Reaction (RT-PCR) results for viral presence will determine whether Favipiravir has safety and efficacy against COVID-19 infections. All ethical issues related to this trial including right of the participants to withdraw from the study should be maintained according to of guidelines of International Conference on Harmonisation (ICH)-Good Clinical Practice (GCP).

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1. **Susceptibility of Armigeres subalbatus Coquillett (Diptera: Culicidae) to Zika virus through oral and urine infection**  
   Li C. X. PLoS Negl Trop Dis 2020;14:e0008450.

BACKGROUND: Zika virus (ZIKV) disease outbreaks have been occurring in South America since 2015, and has spread to North America. Because birth defects and cases of Guillain Barré have been associated with infection with ZIKV, this has drawn global attention. ZIKV is generally considered an Aedes-transmitted pathogen. The transmission of ZIKV through blood by Aedes mosquito bites has been recognized as the major transmission route. However, it is not clear whether there are other transmission routes that can cause viral infection in mosquitos. The aim of the present study is to describe the susceptibility of Armigeres subalbatus, which often develop in human waste lagoons, to ZIKV, through oral infection in adult mosquitoes and urine infection in larvae. METHODOLOGY/PRINCIPAL FINDINGS: Five-day-old female Ar. subalbatus ingested infectious blood meals containing ZIKV. After 4, 7, and 10 days of ingesting infectious blood meals, ZIKV could be detected in the midguts, salivary glands, ovaries, and collected saliva of mosquitoes. The ZIKV infection rate (IR) on day 10 reached 40% in salivary glands and 13% in saliva, indicating that these mosquitoes were able to transmit ZIKV. In addition, ZIKV infection was also discovered in mosquito ovaries, suggesting the possibility of vertical transmission of virus. Moreover, Ar. subalbatus transmitted ZIKV to infant mice bitten by infectious mosquitoes. In a second experiment, 1st-instar larvae of Ar. subalbatus were reared in water containing ZIKV and human urine. After pupation, pupae were placed in clean water and transferred to a mosquito cage for emergence. Although ZIKV RNA was detected in all of the larvae tested, ZIKV was not detected in the saliva of any adult Ar. subalbatus. Considering that there are more uncontrollable factors in nature than in the laboratory environment, the possibility that the virus is transmitted to adult mosquitoes via larvae is very small period. CONCLUSIONS/SIGNIFICANCE: Adult Ar. subalbatus could be infected with ZIKV and transmit ZIKV through mosquito bites. Therefore, in many rural areas in China and in undeveloped areas of other Asian countries, the management of human waste lagoons in the prevention and control of Zika disease should be considered. Corresponding adjustments and modifications should also be made in prevention and control strategies against ZIKV.

1. **Systematic review of COVID-19 in children shows milder cases and a better prognosis than adults**  
   Ludvigsson J. F. Acta paediatrica (Oslo, Norway : 1992) 2020;109:1088-1095.

AIM: The coronavirus disease 2019 (COVID-19) pandemic has affected hundreds of thousands of people. Data on symptoms and prognosis in children are rare., METHODS: A systematic literature review was carried out to identify papers on COVID-19, which is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), using the MEDLINE and Embase databases between January 1 and March 18, 2020., RESULTS: The search identified 45 relevant scientific papers and letters. The review showed that children have so far accounted for 1%-5% of diagnosed COVID-19 cases, they often have milder disease than adults and deaths have been extremely rare. Diagnostic findings have been similar to adults, with fever and respiratory symptoms being prevalent, but fewer children seem to have developed severe pneumonia. Elevated inflammatory markers were less common in children, and lymphocytopenia seemed rare. Newborn infants have developed symptomatic COVID-19, but evidence of vertical intrauterine transmission was scarce. Suggested treatment included providing oxygen, inhalations, nutritional support and maintaining fluids and electrolyte balances., CONCLUSIONS: The coronavirus disease 2019 has occurred in children, but they seemed to have a milder disease course and better prognosis than adults. Deaths were extremely rare. Copyright © 2020 The Authors. Acta Paediatrica published by John Wiley & Sons Ltd on behalf of Foundation Acta Paediatrica.

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1. **Telehealth for High-Risk Pregnancies in the Setting of the COVID-19 Pandemic**  
   Aziz A. Am J Perinatol 2020;:No page numbers.

As New York City became an international epicenter of the novel coronavirus disease 2020 (COVID-19) pandemic, telehealth was rapidly integrated into prenatal care at Columbia University Irving Medical Center, an academic hospital system in Manhattan. Goals of implementation were to consolidate in-person prenatal screening, surveillance, and examinations into fewer in-person visits while maintaining patient access to ongoing antenatal care and subspecialty consultations via telehealth virtual visits. The rationale for this change was to minimize patient travel and thus risk for COVID-19 exposure. Because a large portion of obstetric patients had underlying medical or fetal conditions placing them at increased risk for adverse outcomes, prenatal care telehealth regimens were tailored for increased surveillance and/or counseling. Based on the incorporation of telehealth into prenatal care for high-risk patients, specific recommendations are made for the following conditions, clinical scenarios, and services: (1) hypertensive disorders of pregnancy including preeclampsia, gestational hypertension, and chronic hypertension; (2) pregestational and gestational diabetes mellitus; (3) maternal cardiovascular disease; (4) maternal neurologic conditions; (5) history of preterm birth and poor obstetrical history including prior stillbirth; (6) fetal conditions such as intrauterine growth restriction, congenital anomalies, and multiple gestations including monochorionic placentation; (7) genetic counseling; (8) mental health services; (9) obstetric anesthesia consultations; and (10) postpartum care. While telehealth virtual visits do not fully replace in-person encounters during prenatal care, they do offer a means of reducing potential patient and provider exposure to COVID-19 while providing consolidated in-person testing and services. KEY POINTS: . Telehealth for prenatal care is feasible.. . Telehealth may reduce coronavirus exposure during prenatal care.. . Telehealth should be tailored for high risk prenatal patients..

1. **The changing landscape of SARS-CoV-2: Implications for the maternal-infant dyad**  
   Elgin T. G. Journal of neonatal-perinatal medicine 2020;:No page numbers.

The COVID-19 pandemic represents the greatest challenge to date faced by the medical community in the 21st century. The rate of rapid dissemination, magnitude of viral contagiousness, person to person transmission at an asymptomatic phase of illness pose a unique and dangerous challenge for all patients, including neonatal and obstetric patients. Although scientific understanding of the pathophysiology of the disease, nature of transmission, and efficacy of mitigation strategies is growing, neither a cure or vaccine have been developed. While COVID-19 is primarily a disease of older patients, infection is now seen across all age demographics with reports of illness in pregnant patients and infants. Altered hormone status and predominance of Th-2 immune helper cells may result in increased predisposition to SARS-CoV-2. Case reports of pregnant patients demonstrate a clinical presentation comparable to non-pregnant adults, but evidence of vertical transmission to the fetus is controversial. Neonatal reports demonstrate an inconsistent and non-specific phenotype, and it is often difficult to separate COVID-19 from the underlying conditions of prematurity or bacterial infection. The development of international registries to enable risk profiling of COVID-19 positive pregnant mothers and/or their offspring may facilitate the development of enhanced mitigation strategies, medical treatments and effective vaccinations.

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1. **The clinical course of SARS-CoV-2 positive neonates**  
   De Bernardo G. Journal of perinatology : official journal of the California Perinatal Association 2020;:No page numbers.

The COVID-19 pneumonia was firstly reported in Wuhan, China, in December 2019. The disease had a rapid spread all over the word becoming an international public health emergency. Limited data were available on COVID-19 positive neonates. We reviewed relevant literature to understand the clinical course of disease and transmission routes in affected neonates. The aim of the study was evaluating the clinical course and prognosis of SARS-CoV-2 positive neonates. Based on current literature, the hypothesis of vertical transmission of SARS-CoV-2, though conceivable, remains unproven. A research conducted on PubMed database from December 2019 to April 27, 2020 revealed that were reported 25 neonates affected by SARS-CoV-2. Main symptoms were fever, cough, or shortness of breath but often these neonates did not show other symptoms during length stay in hospital. No deaths occurred.

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1. **The diagnosis of pneumonia in a pregnant woman with coronavirus disease 2019 using maternal lung ultrasound**  
   Inchingolo R. Am J Obstet Gynecol 2020;223:9-11.

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 coronavirus disease 2019. We report our experience on lung ultrasound examination in the diagnosis of coronavirus disease 2019 pneumonia in a pregnant woman. Typical ultrasound features of this pulmonary pathology, including diffuse hyperechoic vertical artifacts with thickened pleural line and "white lung" with patchy distribution, were observed. We suggest point-of-care lung ultrasound examination as a diagnostic imaging tool in pregnant women with suspected coronavirus disease 2019.

1. **The Effects of Pregnancy on Women with COVID-19: Maternal and Infant Outcomes**  
   Schwartz D. A. Clinical infectious diseases : an official publication of the Infectious Diseases Society of America 2020;:No page numbers.

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1. **The Emerging of CRF01\_AE: A Clinical Story and Future HIV/AIDS Situation in Thailand**  
   Winichakoon P. Curr HIV Res 2020;18:74-84.

The HIV epidemic in Thailand in the 1980's compromised the country's socio-economic development. The epidemic first became evident in the community of men with male sexual partners (MSM), and subsequently spread to intravenous drug users (IVDU), female commercial sex workers (CSW) and their male clients, and, ultimately, to their partners and children. The HIV epidemic has devastated the country's working-age population. The extensive negative impact and social stigma associated with the disease do not only have an impact on the victims of HIV but also on their descendants and relatives. An epicenter of the HIV epidemic has been in the northern provinces of Thailand. An HIV-1 subtype CRF01\_AE, a complex chimeric virus composed of both A and E subtypes, is prevalent in Northern Thailand. The virus has quickly become a predominant viral strain circulating in Thailand, other neighboring Southeast Asian countries, and China as well as some other countries throughout the world. The epidemiology, evolution, and biology of CRF01\_AE offer a unique model for further scientific investigations which would advance the knowledge of and curative strategies against HIV. In addition, Thailand has developed suitable national guidelines on HIV/AIDS treatment and prevention in order to control the epidemic. Effective antiretroviral drugs are, therefore, able to be made available to those who live with HIV. The national surveillance system has also been effective. The great efforts and resources which Thailand has dedicated to the fight against the epidemic have eventually paid off. In 2010, a plan was proposed to eliminate mother-to-child HIV transmission and Thailand has become the first country to be effective in this objective. Thailand therefore has become recognized as being the global leader in HIV prevention and treatment. The experience which Thailand has gained from the past and the current research and management strategies of the HIV epidemic has prepared the country for emerging strains of HIV-1 in the future.

1. **The evolving COVID-19 pandemic: An update**  
   Hageman J. R. Pediatric Annals 2020;49:e201-e203.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=4db46c611f21cbc72f2ab73b323c12ee)

1. **The impact of Covid-19 pandemic on breastfeeding and birth care. The importance of recovering good practices.**  
   Lalaguna Mallada P. Rev Esp Salud Publica 2020;94:No page numbers.

The SARS-CoV-2 pandemic has had a major impact on birth care and lactation. The lack of knowledge regarding the transmission mechanisms and the potential risks for the mother and the newborn, even when the vertical transmission of the virus has not been demonstrated, has led to the abandonment of practices such as skin-to-skin and the early initiation of breastfeeding (BF), which offer great benefits for maternal and child health. Taking into account the available scientific evidence and the protective effect of BF, the World Health Organization (WHO), and other organisms recommend, in cases of suspected or confirmed SARS-CoV-2 infection of the mother, maintaining mother-child contact and BF, adopting preventive measure procedures to minimize the risk of contagion. These measures include hand hygiene, before and after contact with the newborn and the use of a mask. If a temporary separation of mother and child is required, it is recommended to feed the newborn with expressed breast milk. The presence of IgA antibodies against SARS-CoV-2 has been confirmed in the milk of infected women, so BF could reduce the clinical impact of the disease in the infant, if it becomes infected.

1. **The need for fully bio-based facemasks to counter coronavirus outbreaks: A perspective**  
   Das O. Sci Total Environ 2020;736:139611.

The onset of coronavirus pandemic has sparked a shortage of facemasks in almost all nations. Without this personal protective equipment, healthcare providers, essential workers, and the general public are exposed to the risk of infection. In light of the aforementioned, it is critical to balance the supply and demand for masks. COVID-19 will also ensure that masks are always considered as an essential commodity in future pandemic preparedness. Moreover, billions of facemasks are produced from petrochemicals derived raw materials, which are non-degradable upon disposal after their single use, thus causing environmental pollution and damage. The sustainable way forward is to utilise raw materials that are side-stream products of local industries to develop facemasks having equal or better efficiency than the conventional ones. In this regard, wheat gluten biopolymer, which is a by-product or co-product of cereal industries, can be electrospun into nanofibre membranes and subsequently carbonised at over 700 °C to form a network structure, which can simultaneously act as the filter media and reinforcement for gluten-based masks. In parallel, the same gluten material can be processed into cohesive thin films using plasticiser and hot press. Additionally, lanosol, a naturally-occurring substance, imparts fire (V-0 rating in vertical burn test), and microbe resistance in gluten plastics. Thus, thin films of flexible gluten with very low amounts of lanosol (<10 wt%) can be bonded together with the carbonised mat and shaped by thermoforming to create the facemasks. The carbon mat acting as the filter can be attached to the masks through adapters that can also be made from injection moulded gluten. The creation of these masks could simultaneously be effective in reducing the transmittance of infectious diseases and pave the way for environmentally benign sustainable products.

1. **The Neurology and Neuropsychiatry of COVID-19**  
   Anon. JNNP blog 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=4ad6d322c076597a5f132295ecea6f56)

1. **The novel coronavirus (2019-nCoV) in pregnancy: What we need to know**  
   Saccone G. European Journal of Obstetrics, Gynecology, and Reproductive Biology 2020;:No page numbers.

1. **The novel coronavirus (SARS-CoV-2) infections in China: prevention, control and challenges**  
   Zhang S. Intensive Care Medicine 2020;46:591-593.

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1. **The novel coronavirus SARS-COV-2 and pregnancy: Literature review**  
   Priputnevich T. V. Akusherstvo i Ginekologiya (Russian Federation) 2020;2020:6-12.

Having emerged in China, the new coronavirus SARS-CoV-2 has spread rapidly worldwide. Pregnant women are patients who have risk factors for severe/complicated acute respiratory viral infections and influenza; however, there have been presently only few works that highlight the specific features of the course of COVID-19, a disease caused by the novel coronavirus SARS-CoV-2, in pregnant women and newborns. The aim of the review was to search for and analyze publications considering the characteristics of the course of COVID-19 in pregnant women and newborns. Pregnancy and childbirth do not seem to aggravate the course of COVID-19; on the contrary, the latter can deteriorate the course of pregnancy: it can cause respiratory distress syndrome and lead to premature birth and miscarriage. There is no current evidence for mother-to-fetus placental transmission of COVID-19 and mother-to-baby transmission during breastfeeding. A large number of interim guidelines for the management of pregnant women with COVID-19 have been published.Copyright ©A group of authors, 2020.

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1. **The Possibility of Covid-19 Vertical Transmission: Could it be Excluded?**  
   Latifnejad Roudsari R. Journal of Midwifery and Reproductive Health 2020;8:2264-2266.

1. **The Real Impact of the Coronavirus Disease 2019 (covid-19) on the Pregnancy Outcome**  
   Goncalves A. K. O impacto real da doenca do coronavirus 2019 (covid-19) no desfecho da gestacao. 2020;42:303-304.

The COVID-19 outbreak is increasing around the world in the number of cases, deaths, and affected countries. Currently, the knowledge regarding the clinical impact of COVID-19 on maternal, fetal, and placental aspects of pregnancy is minimal. Although the elderly and men were the most affected population, in previous situations, such as the 2009 H1N1 influenza pandemic and the Ebola epidemic, pregnant women were more likely to develop complications than nonpregnant women. There are unanswered questions specific to pregnant women, such as whether pregnant women are more severely affected and whether intrauterine transmission occurs. Additional information is needed to inform key decisions, such as whether pregnant health care workers should receive special consideration, whether to separate infected mothers and their newborns, and whether it is safe for infected women to breastfeed. Copyright Thieme Revinter Publicacoes Ltda Rio de Janeiro, Brazil.

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1. **The SARS-CoV-2 receptor ACE2 expression of maternal-fetal interface and fetal organs by single-cell transcriptome study**  
   Li M. PloS one 2020;15:e0230295.

The new type of pneumonia caused by the SARS-CoV-2 (Severe acute respiratory syndrome coronavirus 2) has been declared as a global public health concern by WHO. As of April 3, 2020, more than 1,000,000 human infections have been diagnosed around the world, which exhibited apparent person-to-person transmission characteristics of this virus. The capacity of vertical transmission in SARS-CoV-2 remains controversial recently. Angiotensin-converting enzyme 2 (ACE2) is now confirmed as the receptor of SARS-CoV-2 and plays essential roles in human infection and transmission. In present study, we collected the online available single-cell RNA sequencing (scRNA-seq) data to evaluate the cell specific expression of ACE2 in maternal-fetal interface as well as in multiple fetal organs. Our 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. And in a study containing series fetal and post-natal mouse lung, we observed ACE2 was dynamically changed over the time, and ACE2 was extremely high in neonatal mice at post-natal day 1~3. In summary, this study revealed that the SARS-CoV-2 receptor was widely spread in specific cell types of maternal-fetal interface and fetal organs. And thus, both the vertical transmission and the placenta dysfunction/abortion caused by SARS-CoV-2 need to be further carefully investigated in clinical practice.

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1. **To breastfeed or not to breastfeed? Lack of evidence on the presence of SARS-CoV-2 in breastmilk of pregnant women with COVID-19**  
   Martins-Filho P. R. Rev Panam Salud Publica 2020;44:e59.

A rapid systematic review was carried out to evaluate the current evidence related to the presence of SARS-CoV-2 in breast milk from pregnant women with COVID-19. Eight studies analyzing the presence of SARS-CoV-2 RNA in the breast milk of 24 pregnant women with COVID-19 during the third trimester of pregnancy were found. All patients had fever and/or symptoms of acute respiratory illness and chest computed tomography images indicative of COVID-19 pneumonia. Most pregnant women had cesarean delivery (91.7%) and two neonates had low birthweight (< 2 500 g). Biological samples collected immediately after birth from upper respiratory tract (throat or nasopharyngeal) of neonates and placental tissues showed negative results for the presence SARS-CoV-2 by RT-PCR test. No breast milk samples were positive for SARS-CoV-2 and, to date, there is no evidence on the presence of SARS-CoV-2 in breast milk of pregnant women with COVID-19. However, data are still limited and breastfeeding of women with COVID-19 remains a controversial issue. There are no restrictions on the use of milk from a human breast milk bank.

1. **To study the treatment of COVID-19 with severe viral pneumonia by using purified stem cell exosomes**  
   Kimera L. Ictrp 2020;:No page numbers.

Background and study aims COVID-19 is a condition caused by the coronavirus (called SARS-CoV-2) that was first identified in late 2019. This virus can infect the respiratory (breathing) system. Some people do not have symptoms but can carry the virus and pass it on to others. People who have developed the condition may develop a fever and/or a continuous cough among other symptoms. This can develop into pneumonia. Pneumonia is a chest infection where the small air pockets of the lungs, called alveoli, fill with liquid and make it more difficult to breathe. In 2020, the virus has spread to many countries around the world and neither a vaccine against the virus or specific treatment for COVID-19 has yet been developed. As of March 2020, it is advised that people minimize travel and social contact, and regularly wash their hands to reduce the spread of the virus. Groups who are at a higher risk from infection with the virus, and therefore of developing COVID-19, include people aged over 70 years, people who have long-term health conditions (such as asthma or diabetes), people who have a weakened immune system and people who are pregnant. People in these groups, and people who might come into contact with them, can reduce this risk by following the up-to-date advice to reduce the spread of the virus. COVID-19, the viral respiratory illness that results from SARS-Cov-2 infection, initially presents with mild symptoms for several days concurrent with the highest levels of viral shedding suggesting that the virus itself does not cause significant cytopathic damage. The inflammatory damage of COVID-19 follows as the natural immune response to the virus results in the release of high levels of inflammatory mediators. Elderly individuals are at particular risk because of their diminished immune response, reduced ability to repair the damaged epithelium, and reduced mucociliary clearance, which allows the virus to spread to the alveoli more readily. Inflammatory mediators (cytokines and chemokines) released by type II alveolar epithelial cells increase vasodilation, leukocyte adhesion and capillary permeability. The persistent immune response, despite falling viral titers in this inflammatory phase, leads to progressive tissue injury, suggesting that the inflammatory damage is greater than the viral cytopathic damage. Exosomes derived from mesenchymal stem cells have the capacity to efficiently interfere with the production of inflammatory macrophages since they are specifically ingested. This exosome treatment is highly likely preferential to treat COVID-19. Inclusion criteria: 1. COVID-19 patients requiring invasive mechanical ventilation for respiratory failure due to pneumonia 2. Requiring treatment with vasopressors 3. Requiring artificial ventilation and PaO2/FiO2 < 300 mmHg Intervention: With both subject and the evaluating physician blinded, subjects will be administered the investigational drug injection and placebo (saline) injection at Visit 1 (Day 0), by a non-evaluating (unblinded) study site staff member and will be followed up and re-evaluated by a blinded evaluating physician at Visit 2 (Day 1), Visit 3 (Day 7), Visit 4 (Day 14), Visit 5 (Day 21), Visit 6 (Day 30), Visit 7 (Day 60), Visit 8 (Day 90), visit 9 (day 120), and visit 10 (day 180). At each visit, participants (and accompanying caregivers) will be informed/reminded about study design, responsibilities, and possible adverse events. Intervention: Intravenous infusion of purified exosomes, XoGlo®, which are isolated, neonatal, mesenchymal stem cell-derived extracellular vesicles at a dose of 0.2 mg/kg each in a total of 15ml on day 1 and day 3. Control: 15ml of saline, i.v. on Day 1 and Day 3 Primary outcome: 1. Safety and adverse events measured using i.v. administration of 0.2mg/kg of placental, mesenchymal stem cell-derived exosome preparations (KTA 100,= XoGlo®) at day 1 and day 3 2. Improved respiration measured using PaO2/FiO2 at day 1, 2, and onwards daily

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1. **Transmission of SARS-CoV-2, Required Developments in Research and Associated Public Health Concerns**  
   Khan S. Frontiers in Medicine 2020;7:310.

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is rapidly spreading across the world to cause thousands of mortalities each day. Poor responses from the authorities to the spread of infection, lack of effective measures for prevention, unavailability of promising treatment options, and sufficient diagnostic options have created an alarming for the world. The transmission routes from human to human of SARS-CoV-2 can be the direct transmission, droplet inhalation transmission, contact transmission, transmission through saliva, and transmission via fecal-oral routes. Due to the asymptomatic spread of SARS-CoV-2's, developing control and prevention measures is challenging. Implementing proper strategies addressing the infection control and clinical supplies, understanding the mechanism associated with pathogenesis, advancing in preventive measures and effective treatment and diagnostic options are necessary to control the ongoing pandemic. In this article, we briefly discuss the features, entry mechanism, infectiousness, and health consequences related to the COVID-19 outbreak.© Copyright © 2020 Khan, Liu and Xue.

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1. **Transmission of SARS-CoV-2: an update of current literature**  
   Patel K. P. Eur J Clin Microbiol Infect Dis 2020;:No page numbers.

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the etiologic agent for the 2019 coronavirus disease (COVID-19) pandemic, has caused a public health emergency. The need for additional research in viral pathogenesis is essential as the number of cases and deaths rise. Understanding the virus and its ability to cause disease has been the main focus of current literature; however, there is much unknown. Studies have revealed new findings related to the full transmission potential of SARS-CoV-2 and its subsequent ability to cause infection by different means. The virus is hypothesized to be of increased virulence compared with previous coronavirus that caused epidemics, in part due to its overall structural integrity and resilience to inactivation. To date, many studies have discussed that the rationale behind its transmission potential is that viral RNA has unexpectedly been detected in multiple bodily fluids, with some samples having remained positive for extended periods of time. Additionally, the receptor by which the virus gains cellular entry, ACE2, has been found to be expressed in different human body systems, thereby potentiating its infection in those locations. In this evidence-based comprehensive review, we discuss various potential routes of transmission of SARS-CoV-2-respiratory/droplet, indirect, fecal-oral, vertical, sexual, and ocular. Understanding these different routes is important as they pertain to clinical practice, especially in taking preventative measures to mitigate the spread of SARS-CoV-2.

1. **Transmission routes of 2019-novel coronavirus (2019-nCoV)**  
   Yang C. Zhonghua yu fang yi xue za zhi [Chinese journal of preventive medicine] 2020;54:374-377.

Since the outbreak of COVID-19 in Wuhan, China, at the end of 2019, it has demonstrated China's ability to identify unknown pathogens. At present, reports showed that the main transmission routes are respiratory droplets and indirect contact, other vertical transmission routes have yet to be confirmed. This review discusses the possible transmission routes of 2019-novel coronavirus (2019-nCoV), based on currently research, the main transmission routes are respiratory droplets and indirect contact, fecal-oral might bepossible, while aerosol, tear (conjunctival) and mother-to-fetus still have yet to be confirmed, providing a reference basis for 2019-nCoV prevention and control and public protection.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=07634891d06413c9fd89f67b64ab8341)

1. **Uncertainties about the transmission routes of 2019 novel coronavirus**  
   Han Q. Influenza and other Respiratory Viruses 2020;14:470-471.

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1. **Unlikely SARS-CoV-2 vertical transmission from mother to child: A case report**  
   Peng Z. Journal of infection and public health 2020;13:818-820.

As the 2019 novel coronavirus disease (COVID-19) rapidly spread across China and to more than 70 countries, an increasing number of pregnant women were affected. The vertical transmission potential of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is of great concern to the obstetrics, neonatologists, and public health agencies. Though some studies indicated the risk of vertical transmission 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. She 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 test from her throat and anal swab, serum, bronchoalveolar lavage fluid, and urine were negative. The nucleic acid test from 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. Copyright © 2020 The Authors. Published by Elsevier Ltd.. All rights reserved.

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1. **Update on COVID-19 epidemiology and impact on medical care in children: April 2020**  
   Anon. Canadian Paediatric Society 2020;:No page numbers.

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1. **Updated advice regarding PPE to be worn when managing pregnant women with known or suspected COVID-19**  
   Anon. ICM Anaesthesia COVID-19 2020;:No page numbers.

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1. **Updated SOGC Committee Opinion – COVID-19 in Pregnancy**  
   Anon. Society of Obstetricians and Gynaecologists of Canada 2020;:No page numbers.

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1. **Vaginal delivery in SARS‐CoV‐2‐infected pregnant women in Northern Italy: a retrospective analysis**  
   Ferrazzi E. BJOG: An International Journal of Obstetrics & Gynaecology 2020;:No page numbers.

1. **Vaginal delivery report of a healthy neonate born to a convalescent mother with COVID--19**  
   Xiong X. Journal of medical virology 2020;:No page numbers.

The outbreak of the infection of 2019 novel coronavirus disease (COVID--19) has become a challenging public health threat worldwide. Limited data are available for pregnant women with COVID-19 pneumonia. We report a case of a convalescing pregnant woman diagnosed with COVID-19 infection 37 days before delivery in the third trimester. A live birth without severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection was performed successfully via the vagina. The findings from our case indicate that there is no intrauterine transmission in this woman who developed COVID-19 pneumonia in late pregnancy. Copyright © 2020 Wiley Periodicals, Inc.

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1. **Vertical social distancing policy is ineffective to contain the COVID-19 pandemic**  
   Duczmal L. H. Cad Saude Publica 2020;36:e00084420.

Considering numerical simulations, this study shows that the so-called vertical social distancing health policy is ineffective to contain the COVID-19 pandemic. We present the SEIR-Net model, for a network of social group interactions, as a development of the classic mathematical model of SEIR epidemics (Susceptible-Exposed-Infected (symptomatic and asymptomatic)-Removed). In the SEIR-Net model, we can simulate social contacts between groups divided by age groups and analyze different strategies of social distancing. In the vertical distancing policy, only older people are distanced, whereas in the horizontal distancing policy all age groups adhere to social distancing. These two scenarios are compared to a control scenario in which no intervention is made to distance people. The vertical distancing scenario is almost as bad as the control, both in terms of people infected and in the acceleration of cases. On the other hand, horizontal distancing, if applied with the same intensity in all age groups, significantly reduces the total infected people "flattening the disease growth curve". Our analysis considers the city of Belo Horizonte, Minas Gerais State, Brazil, but similar conclusions apply to other cities as well. Code implementation of the model in R-language is provided in the supplementary material.

1. **Vertical Transmission**  
   Lyras D. Microbiology Australia 2020;41:54-55.

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1. **Vertical transmission and materno-fetal outcomes in 13 patients with COVID-19**  
   Masmejan S. P. L. F. G. P. A. G. E. G. G. B. D. Clinical microbiology and infection 2020;:No page numbers.

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1. **Vertical Transmission of Coronavirus Disease 19 (COVID-19) from Infected Pregnant Mothers to Neonates: A Review**  
   Karimi-Zarchi M. Fetal and pediatric pathology 2020;39:246-250.

Background: Since early December 2019, the Coronavirus Disease 19 (COVID-19) infection has been prevalent in China and eventually spread to other countries. There are a few published cases of COVID-19 occurring during pregnancy and due the possibility of mother-fetal vertical transmission, there is a concern that the fetuses may be at risk of congenital COVID-19. Methods: We reviewed the risk of vertical transmission of COVID-19 to the fetus of infected mothers by using data of published articles or official websites up to March 4, 2020. Results: A total of 31 infected pregnant mothers with COVID-19 were reported. No COVID-19 infection was detected in their neonates or placentas. Two mothers died from COVID-19-related respiratory complications after delivery. Conclusions: Currently, based on 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.

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1. **Vertical transmission of Covid-19-A systematic review**  
   Fornari F. J Pediatr Perinatol Child Health 2020;4:7-13.

1. **Vertical transmission of COVID-19: SARS-CoV-2 RNA on the fetal side of the placenta in pregnancies with COVID-19 positive mothers and neonates at birth**  
   Patane L. American journal of obstetrics & gynecology MFM 2020;:100145.

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1. **Vertical transmission of SARS-CoV-2 infection and preterm birth**  
   Pulinx B. Eur J Clin Microbiol Infect Dis 2020;:No page numbers.

Viral infections are common complications of pregnancy, with a wide range of obstetric and neonatal sequelae. Currently, there are limited data on whether SARS-CoV-2 is vertically transmitted in pregnant women tested positive for the virus. Here we describe a case of a known SARS-CoV-2-positive woman giving preterm birth to two fetuses with SARS-CoV-2 positive testing in placental tissue and amniotic fluid. The placental histological examinations showed chronic intervillositis and extensive intervillous fibrin depositions with ischemic necrosis of the surrounding villi.

1. **Vertical Transmission of SARS-CoV-2: What is the Optimal Definition?**  
   Blumberg D. A. American journal of perinatology 2020;37:769-772.

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1. **Vertical Transmission of Severe Acute Respiratory Syndrome Coronavirus 2: A Systematic Review**  
   Yang Z. American journal of perinatology 2020;:No page numbers.

OBJECTIVE: The aim of this study is to summarize currently available evidence on vertical transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)., STUDY DESIGN: A systematic review was conducted following the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-analysis Statement., RESULTS: A total of 22 studies comprising 83 neonates born to mothers diagnosed with coronavirus disease 2019 were included in the present systematic review. Among these neonates, three were confirmed with SARS-CoV-2 infection at 16, 36, and 72 hours after birth, respectively, by nasopharyngeal swab real-time polymerase chain reaction (RT-PCR) tests; another six had elevated virus-specific antibody levels in serum samples collected after birth, but negative RT-PCR test results. However, without positive RT-PCR tests of amniotic fluid, placenta, or cord blood, there is a lack of virologic evidence for intrauterine vertical transmission., CONCLUSION: There is currently no direct evidence to support intrauterine vertical transmission of SARS-CoV-2. Additional RT-PCR tests on amniotic fluid, placenta, and cord blood are needed to ascertain the possibility of intrauterine vertical transmission. For pregnant women infected during their first and second trimesters, further studies focusing on long-term outcomes are needed., KEY POINTS: . We review neonates of mothers diagnosed with coronavirus disease 2019 detected by real-time polymerase chain reaction (RT-PCR). . . No direct virologic evidence of vertical transmission has been reported.. . No evidence that cesarean delivery is safer than vaginal delivery.. . More RT-PCR tests on amniotic fluid, placenta, and cord blood are recommended.. Copyright Thieme Medical Publishers 333 Seventh Avenue, New York, NY 10001, USA.

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1. **Vertical Transmission of Zika Virus by Jiegao and Mengding Aedes aegypti (Diptera: Culicidae) Strains in Yunnan Province in China**  
   Zhu C. Vector Borne Zoonotic Dis 2020;:No page numbers.

Zika virus (ZIKV) is a mosquito-borne pathogen classified in the genus Flavivirus of the family Flaviviridae. Vertical transmission is considered to be the primary way to maintain some arboviruses under adverse natural conditions, which play a critical epidemiological role in arbovirus spread and maintenance. Aedes aegypti is the primary vector for ZIKV. In this study, we demonstrated vertical transmission in two Ae. aegypti strains from Jiegao (JG) and Mengding (MD) in the border area of Yunnan province. The minimum infection rate of F1 adult progeny from JG Ae. aegypti strain was significantly higher than that of MD Ae. aegypti strain in the second gonotrophic cycle (1:14.29 and 1:200, respectively, p < 0.05). The cytopathic effect was observed in C6/36 cells after infection of ZIKV isolated from the progeny. The results suggest that Ae. aegypti mosquitoes from JG and MD play potential roles in ZIKV spread and maintenance. Therefore, more adult and eggs control methods should be implemented to control mosquitoes if a Zika epidemic occurs.

1. **Vertical transmission risk of SARS-CoV-2 infection in the third trimester: a systematic scoping review**  
   Thomas P. The Journal of Maternal-Fetal & Neonatal Medicine 2020;:1-8.

1. **Visualization of SARS-CoV-2 virus invading the human placenta using electron microscopy**  
   Algarroba G. N. American Journal of Obstetrics & Gynecology 2020;:No page numbers.

1. **Water birth and hydrotherapy for pregnant people with suspected or confirmed COVID-19**  
   Anon. Ontario Midwives 2020;:No page numbers.

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1. **What are the risks of COVID-19 infection in pregnant women?**  
   Qiao J. Lancet (London, England) 2020;395:760-762.

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1. **What can we learn from neonates with COVID-19?**  
   Xiao T. T. World Journal of Pediatrics 2020;16:280-283.

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1. **What is known about the efficacy and cost-effectiveness of copper materials to reduce transmission of viruses?**  
   Anon. COVID-19 Rapid Evidence Service 2020;:No page numbers.

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1. **What paediatricians can do to support children and youth during the COVID-19**  
   Anon. Canadian Paediatric Society 2020;:No page numbers.

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1. **When Separation is not the Answer: Breastfeeding Mothers and Infants affected by COVID-19**  
   Cecília T. Maternal & child nutrition 2020;:e13033.

When Separation is not the Answer: Breastfeeding Mothers and Infants affected by COVID-19. The World Health Organisation (WHO) has provided detailed guidance on the care of infants of women who are a person under investigation (PUI) or confirmed to have COVID-19, which supports immediate postpartum mother-infant contact and breastfeeding with appropriate respiratory precautions. Although many countries have followed WHO guidance, others have implemented infection prevention and control policies (IPC) that impose varying levels of postpartum separation and discourage or prohibit breastfeeding or provision of expressed breastmilk. These policies aim to protect infants from the potential harm of infection from their mothers, yet they may fail to fully account for the impact of separation. Global COVID-19 data are suggestive of potentially lower susceptibility and a typically milder course of disease among children, although the potential for severe disease in infancy remains. Separation causes cumulative harms, including disrupting breastfeeding and limiting its protection against infectious disease, which has disproportionate impacts on vulnerable infants. Separation also presumes the replaceability of breastfeeding - a risk that is magnified in emergencies. Moreover, separation does not ensure lower viral exposure during hospitalizations and post-discharge, and contributes to the burden on overwhelmed health systems. Finally, separation magnifies maternal health consequences of insufficient breastfeeding and compounds trauma in communities who have experienced long-standing inequities and violence, including family separation. Taken together, separating PUI/confirmed SARS-CoV-2 positive mothers and their infants may lead to excess preventable illnesses and deaths among infants and women around the world. Health services must consider the short-and-long-term impacts of separating mothers and infants in their policies.This article is protected by copyright. All rights reserved.

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1. **Why are pregnant women susceptible to viral infection: an immunological viewpoint?**  
   Liu H. Journal of reproductive immunology 2020;:103122.

1. **Application of Monoclonal Antibodies Developed Against the IpaJ Protein for Detection of Chickens Infected With Salmonella enterica Serovar Pullorum Using Competitive ELISA**  
   Yin K. Front Vet Sci 2019;6:386.

Pullorum disease remains an epidemic in the poultry industry in China. The causing pathogen is a host-restricted Salmonella enterica serovar Pullorum, which can spread through both horizontal and vertical transmissions. To eradicate the pullorum disease from poultry farms, it is necessary to specifically monitor the prevalence of the bacterial infection in adult chicks. In this study, we constructed a new competitive ELISA method based on the development of monoclonal antibodies (MAbs) against a specific immunogen of S. Pullorum, IpaJ protein. In total, eight MAbs against IpaJ were prepared using the purified recombinant His-IpaJ protein as the immunogen. Characterization of the eight MAbs demonstrated that 4G5 can be used as the competitive antibody in ELISA. A competitive ELISA was subsequently developed using purified MBP-IpaJ as the capture (0.5 μg/ml) and the HRP-labeled 4G5 (0.14 μg/ml) as the competitive antibody, respectively. A specificity test demonstrated that the ELISA assay can differentiate antisera of S. Pullorum-infected chickens from that of S. Gallinarum and S. Enteritidis. Furthermore, 4 out of 200 clinical antisera collected from a poultry farm were detected to be S. Pulloram positive using this method. The plate agglutination test (PAT) and the previously established indirect ELISA confirmed that these positive antisera reacted specifically with S. Pullorum. We propose that the established competitive ELISA assay based on MAb against IpaJ protein, is a novel and quick method that can detect S. Pullroum infection in the poultry industry.

1. **Corona virus disease (COVID-19) and pregnancy: What obstetrician should know**  
   Malhotra J. Journal of SAFOG 2019;11:337-339.

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1. **Efficient fecal-oral and possible vertical, but not respiratory, transmission of emerging Chlamydia gallinacea in broilers**  
   You J. Veterinary Microbiology 2019;230:90-94.

Chlamydia gallinacea is an endemic Chlamydia agent in poultry with a worldwide distribution. The aim of this study was to investigate whether C. gallinacea can be transmitted via fecal-oral, respiratory and vertical routes. After co-housing with C. gallinacea-inoculated broilers (n = 10) for 15 days, over 90.0% of SPF broilers (n = 10) became C. gallinacea-positive in their oropharyngeal and cloacal swabs. Connection of isolators with ventilation tubing resulted in transmission of infectious bronchitis virus, but not of C. gallinacea, from infected broilers in one isolator to uninfected ones in the other isolator. Chlamydia-qPCR determined that 97.6% of shells of embryonated eggs (287/294) from a breeding farm were positive for C. gallinacea. C. gallinacea positivity in egg albumen increased significantly from 7.6% (10/128) before incubating to 44.4% (8/18) of 7-day incubation, and from 5.5% (7/128) to 38.9% (7/18) in egg yolk. After incubating for 19 days, C. gallinacea DNA was detected in heart (5/55, 9.1%), liver (3/55, 5.5%), spleen (7/55, 12.7%), lung (6/55, 10.1%), kidney (8/55; 14.5%) and intestine (4/55, 7.3%) of chicken embryos. Taken together, our data indicate that C. gallinacea can be efficiently transmitted by the fecal-oral route, but not via aerosol. Additionally, vertical transmission can occur via penetration of C. gallinacea from eggshell to albumen, yolk, and the growing embryo. Our findings provide essential information for the control of C. gallinacea in poultry farms.Copyright © 2019 Elsevier B.V.

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1. **Evidence of prenatal toxicity of herbal based indigenous formulations for sex selection in rat models**  
   Bandyopadhyay Neogi S. J Tradit Complement Med 2019;:No page numbers.

Indigenous preparations(IPs) for a male child is reported from some parts of India. The present study aims to explore the effects of IPs for sex selection or sex selection drugs (SSDs) on pregnancy outcomes in rat models. SSDs contain Bryonia laciniosa, Quercus infectoria and Putranjiva roxburghii along with other ingredients. METHODS: An experimental design with successfully mated female rats were randomized into control and treatment groups. Phase 1 had 2 interventional arms while phase 2 had 3 interventional arms (12 rats/arm) besides control arm. In phase-1, pregnant females were dosed two SSDs(1000 mg/kg) on gestation days 1-5 whereas, in phase-2, on gestation days 6-19 to correlate the effect of the SSDs (500/1000/1500 mg/kg) consumption during different stages of pregnancy. Pregnant females were observed for clinical signs following treatment. The rats were sacrificed one day before expected day of delivery for evaluation. Pregnancy rate, gestation index, number of corpora lutea, and litter size were assessed. Foetuses were examined for sex, skeletal and soft tissue alterations. DISCUSSION AND CONCLUSION: In phase 1, no appreciable findings were there with SSD exposure. In phase 2, intrauterine growth and survival of foetuses were affected when SSDs were administered during organogenesis period. Decreased number of live foetuses and increased incidence of early and late resorption, reduced fetal growth with significant alteration in skeleton and viscera were found in treatment groups in a dose-dependent manner. This correlates well with findings from observational studies in pregnant women. However, such treatment at any dose did not effect sex differentiation.

1. **Health issues in breeding gamebirds**  
   Welchman D. Veterinary Record 2019;184:435-436.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=8810a47aabcaa45ac9125bc16c28fcea)

1. **History of the HIV Epidemic in China**  
   Wu Z. Current HIV/AIDS Reports 2019;16:458-466.

Purpose of Review: This study aims to review the history of the human immunodeficiency virus (HIV) infection epidemic in China. Recent Findings: The HIV infection epidemic in China has evolved significantly over the past 35 years, from initially exclusively within people who inject drugs (PWID), to outbreaks due to plasma collection contamination in the mid-1990s, to now almost exclusive transmission via sexual contact. The number of newly-diagnosed cases and the number HIV-related deaths have increased each year since 2004, coinciding with a massive scale-up of both HIV testing and antiretroviral therapy initiation. The proportion of cases diagnosed later in their disease progression has remained constant. Summary: The initial outbreaks of HIV across China were identified quickly and the overall trends have been monitored. While the HIV epidemic among PWID has been well managed, the growing HIV epidemic via sexual contact has grown more complex and even more difficult to control.Copyright © 2019, Springer Science+Business Media, LLC, part of Springer Nature.

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1. **Mathematical analysis and simulation of a Hepatitis B model with time delay: A case study for Xinjiang, China**  
   Zhang T. L. Math Biosci Eng 2019;17:1757-1775.

The incubation period for Hepatitis B virus (HBV) within the human is epidemiologically significant because it is typically of long duration (1.5∼6 months) and the disease transmission possibility may be increased due to more contact from the patients in this period. In this paper, we investigate an SEICRV epidemic model with time delay to research the transmission dynamics of Hepatitis B disease. The basic reproductive number ${\mathcal R}\_0$ is derived and can determine the dynamics of the model. The disease-free equilibrium is globally asymptotically stable if ${\mathcal R}\_0<1 and="" unstable="" if="" mathcal="" r="" \_0="">1$. As ${\mathcal R}\_0>1$, the model admits a unique endemic equilibrium which is locally asymptotically stable. The endemic equilibrium is globally asymptotically stable when the vertical transmission is ignored. Numerically, we study the Hepatitis B transmission case in Xinjiang, China. Using the Hepatitis B data from Xinjiang, the basic reproductive number is estimated as 1.47 (95% CI: 1.34-1.50). By the end of 2028, the cumulative number of Hepatitis B cases in Xinjiang will be estimated about 700,000 if there is no more effective preventive measures. The sensitivity analysis of ${\mathcal R}\_0$ in terms of parameters indicates prevention and treatment for chronic patients are key measures in controlling the spread of Hepatitis B in Xinjiang.

1. **Outbreak Of Klebsiella pneumoniae Carbapenemase-Producing Klebsiella aerogenes Strains In A Tertiary Hospital In China**  
   Hao M. Infect Drug Resist 2019;12:3283-3290.

PURPOSE: This study aimed to evaluate the molecular characteristics and prevalence of clinical carbapenem-resistant Klebsiella aerogenes (CRKA), collected during an outbreak in a Chinese tertiary hospital. METHODS: Antimicrobial susceptibility test, using 17 antibiotics, was performed on 14 CRKA isolates. The strains were examined for the presence of β-lactamase genes by PCR, and efflux pump phenotype was determined by efflux pump inhibition test. Presence of outer-membrane porins was examined. Clonal relatedness among the isolates was investigated by pulsed-field gel electrophoresis (PFGE). S1 nuclease-PFGE and plasmid incompatibility group analysis were performed to determine plasmids, and the genetic environment of bla (KPC-2) was analyzed. Epidemiological data were collected via chart review. RESULTS: The 14 CRKA isolates were all resistant to carbapenems; five distinct groups (PFGE types A-E) were observed. All 14 isolates carried the bla (KPC-2) gene. S1 nuclease-PFGE indicated the size of bla (KPC-2)-carrying plasmids to range from 20 kb to 200 kb, and the 14 plasmids belonged to various incompatibility groups. The most frequent genetic environment of bla (KPC-2) was Tn1721- bla (KPC-2-)ΔTn3-IS26. PFGE type A group, including 11 KPC-2-producing clinical isolates, was primarily responsible for dissemination. CONCLUSION: Our findings suggest both transposons and vertical transmission to contribute to the transformation of bla (KPC-2). The results strongly suggest strict implementation of infection control of CRKA, in healthcare facilities.

1. **Prevalence of Different Genotypes of HIV-1 in Injection Drug Users in China: A Systematic Review and Meta-Analysis**  
   Jiang Y. Current Hiv Research 2019;17:240-257.

Background: Since 1981, an increasing trend in HIV has been observed for transmission via injection drug users (IDUs), sexual transmission and mother-to-child transmission. The IDUs are blamed for early increases in HIV-positive cases in China. Objective: HIV genotypes of IDUs were comprehensively analysed to trace the source and relationships of the AIDS epidemic in China. Methods: Relevant databases written in English and Chinese were searched. Overall, 7,149 publications were identified in six databases. After screening 7,104 articles according to the inclusion and exclusion criteria, 45 studies consisting of 2,765 cases were finally identified. A meta-analysis was conducted using R MATLAB software, RevMan and SPSS. Subgroup analyses focused on time frame, region, and location of different genotypes of IDUs in China. Results: There were five dominant HIV-1 genotypes among the 2,765 IDU cases. The proportions of CRF07\_BC, CRF01\_AE, CRF08\_BC, subtype B/B', and subtype C were 45.18% (95% CI: 33.55-57.08%), 16.00% (95% CI: 9.39-23.82%), 13.43% (95% CI: 7.32-20.84%), 3.58% (95% CI: 1.52-6.24%), and 0.90% (95% CI: 0.04-2.43%), respectively. HIV genotypes transmitted among IDUs in China are primarily CRF07-BC, followed by CRF01-AE and CRF08-BC. Across the different time frames and regions, CRF07\_BC was the most prevalent HIV-1 genotype among IDUs, while CRF08\_BC was the most prevalent genotype in the southwest region. Conclusion: Our study reveals that CRF07-BC was the dominant prevalent strain among IDUs from 1991 to 2015 in China, while CRF08-BC was the dominant prevalent strain among IDUs in southwestern China. This systematic review and meta-analysis shows evidence of the comprehensive prevalence of different genotypes, data and characteristics of HIV among IDUs in China.

1. **The effect of group B streptococcus on maternal and infants' prognosis in Guizhou, China**  
   Dai W. Biosci Rep 2019;39:No page numbers.

Group B Streptococcus (GBS) is a kind of opportunistic pathogenic bacteria and mainly strikes the lower digestive tract and genitourinary tract. It is a major risk factor for neonatal babies, seriously threatening their lives. In the present study, we aimed to detect the GBS colonization in late pregnant women, and to study the effect of GBS on maternal and infants' prognosis. Pregnant women with a gestational age of 35-37 weeks were enrolled in the study. Real-time polymerase chain-reaction (RT-PCR) was used to detect the colonization of GBS in the vaginal and rectal secretions for late pregnant women according to the screening guidelines. Chi-square test was applied to analyze the relationship between GBS colonization and clinical characteristics. A follow-up of 6 weeks was performed on the puerpera and infants after delivery. The positive rate of GBS was 12.6% in late pregnant women. GBS carrier state was positively related to several pregnancy outcomes, including intrauterine infection, premature rupture of membranes, postpartum hemorrhage, fetal distress and puerperal infection, as well as to part neonatal outcomes, containing neonatal infection, neonatal pneumonia and neonatal sepsis (all P < 0.05). GBS infection in late pregnant women results in adverse effects on maternal and neonatal outcomes.

1. **Perceptions of obstetricians and pediatricians about the risk of COVID-19 for pregnant women and newborns**  
   Obeidat N. International Journal of Gynecology & Obstetrics 2000;:No page numbers.

Objective To assess the perception of obstetricians and pediatricians about risks of COVID-19 on pregnant women and possible complications in newborns. Methods A structured 27-item online survey was sent via social media messaging to obstetricians and pediatricians from public, academic, and private sectors in Jordan between March 23-30, 2020. Descriptive statistics were used to represent numbers and percentages of participants' responses to survey items. Results A total of 147 physicians participated (107 obstetricians, 40 pediatricians). Participants were well informed about the symptoms, diagnosis, modes of transmission, and methods of prevention. Participants had variable perceptions about COVID-19 risk during pregnancy, including potential vertical transmission, preferred route of delivery, and safety of breastfeeding. Most participants felt that pregnant women should be prioritized for testing and medical care provision. Conclusion While evidence-based strategies to reduce the risks of COVID-19 in pregnant women and newborns are evolving, healthcare providers showed excellent knowledge of the infection and were vigilant regarding its complications for mothers and newborns. To ensure safe pregnancy, physicians must keep informed of developing guidance on best and safest prenatal and perinatal health services. Implementing local hospital policies and adequate training in infection control measures is strongly encouraged.

1. **Preterm delivery, maternal death, and vertical transmission in a pregnant woman with COVID-19 infection**  
   Zamaniyan M. Prenatal Diagnosis 2000;:No page numbers.

1. **SARS-CoV-2 possible contamination of genital area: implications for sexual and vertical transmission routes**  
   Delfino M. Journal of the European Academy of Dermatology and Venereology 2000;:No page numbers.

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