

COVID-19 AND ASSISTED REPRODUCTION

RESOURCE LIST

Note: COVID-19 information and best practices are constantly being updated, so ensure that any resource you consult is up to date. Cook Medical provides these links only for reference and does not intend for them to be taken as practice recommendations or procedural advice.

Fertility society information and guidelines

- American Society for Reproductive Medicine. COVID-19 updates and resources. ASRM Web site. <https://www.asrm.org/news-and-publications/covid-19/>
- Canadian Fertility & Andrology Society. CFAS communication on COVID-19. CFAS Web site. https://cfas.ca/CFAS_Communication_on_COVID-19.html
- European Society of Human Reproduction and Embryology. COVID-19 information. ESHRE Web site. <https://www.eshre.eu/Home/COVID19WG>
- Fertility Society of Australia. COVID-19 information. FSA Web site. <https://www.fertilitysociety.com.au/home/fsa-statement-covid-19/>
- International Federation of Fertility Societies. IFFS international resource center on COVID-19 and reproductive health. IFFS Web site. <https://www.iffsreproduction.org/page/COVID-19>

IVF laboratory management guidance

- Society for Assisted Reproductive Technology (SART), College of Reproductive Biology (CRB), Society for Reproductive Biologists and Technologists (SRBT). Laboratory guidance for commencing or continuing ART operations during the ongoing COVID-19 pandemic. American Association of Bioanalysts (AAB) Web site. <https://www.aab.org/images/CRB/2020/Laboratory%20guidance%20for%20COVID.pdf>
- College of Reproductive Biology (CRB). IVF laboratory management during COVID-19 pandemic. American Association of Bioanalysts (AAB) Web site. <https://bit.ly/2MTnBS4>
- Society for Assisted Reproductive Technology (SART). SART COVID-19 toolkit: tips on resuming care. SART Web site. https://www.sart.org/globalassets/_sart/covid-19/tips-for-resuming-care/sart-covid-19-toolkit.pdf
- Department of Labor, Department of Health and Human Services. Guidance on preparing workplaces for COVID-19. Occupational Safety and Health Administration (OSHA) Web site. <https://www.osha.gov/Publications/OSHA3990.pdf>
- Centers for Disease Control and Prevention (CDC). Frequently asked questions about biosafety and Coronavirus (COVID-19) for laboratories. CDC Web site. <https://www.cdc.gov/coronavirus/2019-ncov/lab/biosafety-faqs.html>
- De Santis L, Anastasi A, Cimadomo D, et al. COVID-19: the perspective of Italian embryologists managing the IVF laboratory in pandemic emergency. *Hum Reprod.* 2020:deaa074. <https://academic.oup.com/humrep/article/35/4/1004/5817891>

- Alviggi C, Esteves SC, Orvieto R, et al. COVID-19 and assisted reproductive technology services: repercussions for patients and proposal for individualized clinical management. *Reprod Biol Endocrinol*. 2020;18:45. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7218705/>
- Hickman C, Rogers S, Huang G, et al. Managing the IVF laboratory during a pandemic: International perspective from laboratory managers. *Reprod Biomed Online*. 2020:1-23. [https://www.rbmojournal.com/article/S1472-6483\(20\)30273-X/fulltext](https://www.rbmojournal.com/article/S1472-6483(20)30273-X/fulltext)

Clinical evidence

a. Effect on gametes and embryos

- Colaco S, Chhabria K, Singh N, et al. Expression of SARS-CoV-2 receptor ACE2 and the spike protein processing enzymes in developing human embryos. Cornell University arXiv.org Web site. <https://arxiv.org/pdf/2004.04935.pdf>
- Li D, J Meiling, B Pengtao. Clinical characteristics and results of semen tests among men with coronavirus disease 2019. *Jama Netw Open*. 2020;3(5):e208292. <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2765654>
- Wang Z, Xiaojiang X. scRNA-seq profiling of human testes reveals the presence of the ACE2 receptor, a target for SARS-CoV-2 infection in spermatogonia, Leydig and Sertoli cells. *Cells*. 2020;9(4):920. <https://www.ncbi.nlm.nih.gov/pubmed/32283711>
- Pan F, Xiao X, Guo J, et al. No evidence of severe acute respiratory syndrome–coronavirus 2 in semen of males recovering from coronavirus disease 2019. *Fertil Steril*. 2020;113(6):1135-1139. [https://www.fertstert.org/article/S0015-0282\(20\)30384-8/fulltext](https://www.fertstert.org/article/S0015-0282(20)30384-8/fulltext)
- Stanley KE, Thomas E, Leaver M, et al. Coronavirus disease (COVID-19) and fertility: viral host entry protein expression in male and female reproductive tissues [published online ahead of print May 8, 2020]. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7205710/>

b. Cryostorage

- Pomeroy KO, Harris S, Conaghan J, et al. Storage of cryopreserved reproductive tissues: evidence that cross-contamination of infectious agents is a negligible risk. *Fertil Steril*. 2010;94(4):1181-1188. <https://pubmed.ncbi.nlm.nih.gov/19481743/>
- Morris GJ. The origin, ultrastructure, and microbiology of the sediment accumulating in liquid nitrogen storage vessels. *Cryobiology*. 2005;50(3):231-238. <https://www.ncbi.nlm.nih.gov/pubmed/15925575>
- Parmegiani L, Accorsi A, Bernardi S, et al. A reliable procedure for decontamination before thawing of human specimens cryostored in liquid nitrogen: three washes with sterile liquid nitrogen (SLN2). *Fertil Steril*. 2012;98(4):870-875. [https://www.fertstert.org/article/S0015-0282\(12\)00681-4/fulltext](https://www.fertstert.org/article/S0015-0282(12)00681-4/fulltext)
- Cobo A, Bellver J, José de los Santos M, et al. Viral screening of spent culture media and liquid nitrogen samples of oocytes and embryos from hepatitis B, hepatitis C, and human immunodeficiency virus chronically infected women undergoing in vitro fertilization cycles. *Fertil Steril*. 2012;97(1):74-78. [https://www.fertstert.org/article/S0015-0282\(11\)02672-0/fulltext](https://www.fertstert.org/article/S0015-0282(11)02672-0/fulltext)

Testing for COVID-19

- Centers for Disease Control and Prevention (CDC). Evaluating and testing persons for coronavirus disease 2019 (COVID-19). CDC Web site. <https://www.cdc.gov/coronavirus/2019-nCoV/hcp/clinical-criteria.html>

- Centers for Disease Control and Prevention (CDC). Interim guidelines for collecting, handling, and testing clinical specimens for COVID-19. CDC Web site. <https://www.cdc.gov/coronavirus/2019-ncov/lab/guidelines-clinical-specimens.html>
- Centers for Disease Control and Prevention (CDC). Testing for Covid-19. CDC Web site. <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/testing.html>
- Infectious Diseases Society of America (IDSA). Infectious Diseases Society of America guidelines on the diagnosis of COVID-19. IDSA Web site. <https://www.idsociety.org/practice-guideline/covid-19-guideline-diagnostics/>
- Johns Hopkins Bloomberg School of Public Health Center for Health Security. Serology-based tests for COVID-19. Center for Health Security Web site. <https://www.centerforhealthsecurity.org/resources/COVID-19/serology/Serology-based-tests-for-COVID-19.html>
- Yale Medicine, Yale New Haven Health System (YNHHS). Covid-19 ambulatory PCR testing principles as of April 22, 2020. Ontoport Web site. <https://bit.ly/YaleAmbuTesting>
- Sheridan C. Fast, portable tests come online to curb coronavirus pandemic. *Nature Biotechnol.* 2020;38:509-522. <https://media.nature.com/original/magazine-assets/d41587-020-00010-2/d41587-020-00010-2.pdf>

Disinfectants

- Environmental Protection Agency (EPA). Frequent questions about disinfectants and coronavirus (COVID-19). EPA Web site. <https://www.epa.gov/coronavirus/frequent-questions-about-disinfectants-and-coronavirus-covid-19>
- Environmental Protection Agency (EPA). List N: disinfectants for use against SARS-CoV-2. EPA Web site. <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>
- Van Doremalen, Bushmaker T. Aerosol and surface stability of SARS-CoV-2 as compared with SARS-CoV-1 [published online ahead of print March 17, 2020]. *N Engl J Med.* <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7121658/>
- Kampf G, Todt D, Pfaender S, et al. Persistence of coronaviruses on inanimate surfaces and their inactivation with biocidal agents. *J Hosp Infect.* 2020;104(3):P246-P251. [https://www.journalofhospitalinfection.com/article/S0195-6701\(20\)30046-3/fulltext](https://www.journalofhospitalinfection.com/article/S0195-6701(20)30046-3/fulltext)

Personal protective equipment

- Centers for Disease Control and Prevention (CDC). Guidance for the selection and use of personal protective equipment (PPE) in healthcare settings. CDC Web site. <https://www.cdc.gov/hai/pdfs/ppe/ppeslides6-29-04.pdf>
- Public Health England. COVID-19 personal protective equipment (PPE). GOV.UK Web site. <https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/covid-19-personal-protective-equipment-ppe>
- Landrish JP, Mills NL, Chan JKK, et al. Beneficial cardiovascular effects of reducing exposure to particulate air pollution with a simple facemask. *Part Fibre Toxicol.* 2009;6:8. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2662779/>
- American Society for Reproductive Medicine (ASRM). American Society for Reproductive Medicine (ASRM) patient management and clinical recommendations during the coronavirus (COVID-19) pandemic. ASRM Web site. <https://www.asrm.org/globalassets/asrm/asrm-content/news-and-publications/covid-19/covidtaskforceupdate4.pdf>

Psychological issues - Staff

- American Society for Reproductive Medicine (ASRM). Coping strategies for laboratory professionals during the COVID-19 pandemic. ASRM Web site. <https://www.asrm.org/news-and-publications/covid-19/videos/coping-strategies-for-laboratory-professionals-during-the-covid-19-pandemic/>
- Centers for Disease Control and Prevention (CDC). Employees: how to cope with job stress and build resilience during the COVID-19 pandemic. CDC Web site. <https://www.cdc.gov/coronavirus/2019-ncov/community/mental-health-non-healthcare.html>
- National Alliance on Mental Illness (NAMI). COVID-19 resource and information guide. NAMI Web site. <https://www.nami.org/covid-19-guide>

Pregnancy

- Elshafeey F, Magdi R, Hindi N, et al. A systematic scoping review of COVID-19 during pregnancy and childbirth. *Int J Gynaecol Obstet*. 2020;150(1):47-52. <https://obgyn.onlinelibrary.wiley.com/doi/full/10.1002/ijgo.13182>
- Shalish W, Lakshminrusimha S, Manzoni P, et al. COVID-19 and neonatal respiratory care: current evidence and practical approach [published online ahead of print May 2, 2020]. *Am J Perinatol*. <https://pubmed.ncbi.nlm.nih.gov/32359226/>
- ASPIRE. Pregnant during the pandemic? ASPIRE Web site. <https://aspire.ucsf.edu/>
- Cochrane Gynaecology and Fertility. COVID-19 (coronavirus disease) - fertility and pregnancy. Cochrane Gynaecology and Fertility Web site. <https://cgf.cochrane.org/news/covid-19-coronavirus-disease-fertility-and-pregnancy>
- American College of Obstetricians and Gynecologists (ACOG). Novel coronavirus 2019 (COVID-19). ACOG Web site. <https://www.acog.org/clinical/clinical-guidance/practice-advisory/articles/2020/03/novel-coronavirus-2019>

Third-party reproduction

- Food and Drug Administration (FDA). Guidance for industry: revised recommendations for the assessment of donor suitability and blood product safety in cases of suspected severe acute respiratory syndrome (SARS) or exposure to SARS. FDA Web site. <https://www.fda.gov/media/124354/download>
- Food and Drug Administration (FDA). Updated information for human cell, tissue, or cellular or tissue-based product (HCT/P) establishments regarding the coronavirus disease 2019 pandemic. FDA Web site. <https://www.fda.gov/vaccines-blood-biologics/safety-availability-biologics/updated-information-human-cell-tissue-or-cellular-or-tissue-based-product-hctp-establishments>