



AMERICAN SOCIETY FOR REPRODUCTIVE MEDICINE (ASRM) PATIENT MANAGEMENT AND CLINICAL RECOMMENDATIONS DURING THE CORONAVIRUS (COVID-19) PANDEMIC

UPDATE No. 9 (October 6, 2020 through November 9, 2020)

The current update by the ASRM Coronavirus/COVID-19 Task Force (the “Task Force”)¹ continues to affirm the recommendations presented in Update No. 3 ([American Society for Reproductive Medicine Patient Management and Clinical Recommendations during the Coronavirus \(COVID-19\) Pandemic - Update No. 3, April 24, 2020](#)), which were further elaborated upon in Update Nos. 4-8. Collectively, these updates recommend the judicious resumption of the delivery of reproductive care, with the use of careful preventive measures, such as the use of Personal Protective Equipment (PPE), including masks, frequent hand washing, and social distancing measures. Given the continued presence of COVID-19 cases in much of the United States (U.S.), these strategies continue to be critical in managing this ongoing pandemic.

Since the last update, the Task Force has observed the following:

- As of October 4, 2020, the U.S. continues to lead the world in COVID-19 deaths and cases. COVID-19 cases now exceed 7.4 million in the U.S. with more than 209,400 deaths. At present, COVID-19 represents the third leading cause of daily deaths following cardiovascular disease and cancer.
- Daily cases in the U.S. exceeded 54,000 last week and are concerning for a possible second wave of contagion in the U.S. As we enter the flu season, the Task Force strongly advises all reproductive health practices to require flu immunization for all their healthcare providers and strongly recommends that all patients receive the flu vaccine as well.

¹ This guidance document was developed under the direction of the Coronavirus/COVID-19 Task Force of the American Society for Reproductive Medicine. These recommendations are being provided as a service to its members, other practicing clinicians, and to the patients they care for, during the coronavirus pandemic. While this document reflects the views of members of the Task Force, it is not intended to be the only approved standard of practice or to dictate an exclusive course of treatment. Clinicians should always use their best clinical judgment in determining a course of action and be guided by the needs of the individual patient, available resources, and institutional or clinical practice limitations. The Executive Committee of the American Society for Reproductive Medicine has approved this guidance document.

The ASRM Coronavirus/COVID-19 Task Force members for this update included Ricardo Azziz MD, MPH, MBA, Natan Bar-Chama MD, Marcelle Cedars MD, Christos Coutifaris MD, PhD, Mark Cozzi MBA, Jodie Dionne-Odom MD, Kevin Doody MD, Eve Feinberg MD, Elizabeth Hern MBA, Jennifer Kawwass MD, Sigal Klipstein MD, Paul Lin MD, Anne Malave PhD, Alan Penzias MD, John Petrozza MD, Samantha Pfeifer MD, Catherine Racowsky PhD, Enrique Schisterman PhD, James Segars MD, Peter Schlegel MD, Hugh Taylor MD, and Shane Zozula BS, in consultation with other experts.

- Statewide viral spread and population positivity rates now differ widely across the U.S. Specifically, some states that instituted restrictions have flattened the curve (NY, MA, NJ, CT, DC, FL, RI) but in other states viral spread has increased (SD, ND, IA, MO, NE, OK, ID, MO, AK). In the past two weeks, more than 20 states have observed an increase in COVID-19 cases, while only eight have recorded a decrease (AZ, CA, FL, LA, NV, RI, TX, WY). Percentages of positive testing are now at 0.9% in MA, but other states have positivity rates above 10% (AL, NV, MO, FL, IA, KA, UT), and in some the positivity rate exceeds 20% (ID, WI, SD, MS). These statewide differences may lead to re-imposing restrictions on the delivery of reproductive services for certain locales in crisis. Additionally, disease prevalence may demand increased frequency of testing for patients and providers.
- Nevertheless, the Task Force emphasizes that [surveillance testing](#) (i.e. the ongoing, systematic collection, analysis, and interpretation of health-related data essential to planning, implementation, and evaluation of public health practice) does not constitute prevention and, at present, scrupulous attention to the use of PPE, including masks, hand washing, and social distancing measures should continue to be required. Recently, the virus has spread to leaders in the U.S., including the President and First Lady, emphasizing that surveillance testing alone cannot prevent viral spread and that all are vulnerable to COVID-19.

In the current revision, the Task Force continues to support the judicious delivery of fertility care with strict adherence to recommended measures for disease prevention, including implementation of travel restrictions and quarantines when appropriate. This update provides: new information on testing including consideration of point-of-care antigen testing for patients undergoing fertility care; surveillance recommendations; updates on vaccine types and therapeutics; and mental health recommendations for the specialty.

UPDATE ON SARS-COV-2 TESTING

Diagnostic testing and subsequent isolation of infected individuals is pivotal to controlling the global pandemic. In several countries, large scale testing has been the key to disease containment. Countries have used different testing approaches depending on testing capacity, public health resources, and community spread. The U.S. has been plagued by limited testing capacity, and [testing has been prioritized for specific individuals](#).

In the face of widespread transmission of the SARS-CoV-2 virus, the role of diagnostic testing is contingent upon the type of testing used, the resources required for testing, and the time needed to obtain results.

- Two general types of testing for SARS-CoV-2 exist: viral (testing for evidence of the presence of the virus) and antibody (testing for evidence of immunity against the virus). At present, the U.S. Food and Drug Administration (FDA) has not authorized the use of antibody tests to diagnose SARS-CoV-2 infection, and the U.S. Centers for Diseases Control and Prevention (CDC) [does not currently recommend using antibody testing as the sole basis for diagnosis of acute infection](#).
- Authorized assays for viral testing include those that detect SARS-CoV-2 nucleic acid or antigen. Viral tests check samples from the respiratory system (such as nasal or oral swabs or saliva) to determine whether an infection with SARS-CoV-2 is present. Point-of-care (POC) testing is usually based on [rapid antigen testing](#).
- Antigen tests are not as reliable as the [reverse transcription polymerase chain reaction \(RT-PCR\) tests](#), which qualitatively detect nucleic acid from SARS-CoV-2. However, they are quicker, less expensive, and less invasive. Currently, the rapid antigen tests that have received emergency use

authorization (EUA) from the FDA are authorized for *diagnostic testing* on symptomatic persons within the first five to seven days of symptom onset (see **Table 1** below).

- Serial antigen testing within a closed congregate setting could quickly identify someone with a SARS-CoV-2 infection and prevent further transmission. Modeling evidence indicates that outbreak control depends largely on the frequency of testing and the speed of reporting and is only marginally improved by high test sensitivity. For this reason, [serial antigen testing](#) may have benefits for early the identification of infected subjects and for controlling outbreaks in high risk congregate settings such as nursing homes, schools, sports teams, and healthcare facilities, compared to RT-PCR tests in settings with prolonged turnaround times.
- Infertility treatment is a special circumstance that may benefit from serial antigen testing. Patients interface with the healthcare system frequently and have multiple points of contact. Furthermore, there are limited data on the effect of COVID-19 on pregnancy, the fetus, and the child. Therefore, it may be reasonable to advocate for enhanced testing strategies in this population, a position that has been strongly advocated by leading epidemiologists.
- Frequent, inexpensive, and rapid tests for high-risk, symptomatic, and asymptomatic persons, followed by confirmatory nucleic acid testing for those that test positive, is the best way to contain COVID-19 spread (1). However, testing should not be used as a substitute for recognized mitigation strategies, such as masking, frequent hand washing, and physical distancing. The limitations of frequent testing must be recognized.
- The decision of how to implement testing strategies within one’s practice should be dependent on local prevalence of disease, availability of testing and cost.

Table 1. Point-of-Care Rapid Antigen Tests for SARS-CoV-2

Company	Test	Sensitivity/Specificity
Abbott Diagnostics Scarborough, Inc.	BinaxNOW COVID-19 Ag Card	Sensitivity 97.1% Specificity 98.5%
LumiraDx UK Ltd.	<u>LumiraDx SARS-CoV-2 Ag Test</u>	Sensitivity 97.6% Specificity 96.6%
Becton, Dickinson & Co.	BD Veritor System for Rapid Detection of SARS-CoV-2	Sensitivity 84% Specificity 100%
Quidel Corp.	<u>Sofia SARS Antigen FIA</u>	Sensitivity 96.7% Specificity 100%

All of these tests are [approved by the FDA for Emergency Use](#), and can be performed in CLIA-approved laboratories or in the patient care setting with a CLIA certificate of waiver.

VARIATIONS IN CLINICAL PRACTICE ACCORDING TO REGIONAL COVID-19 INFECTION RATES

Prevention of the spread of COVID-19 in the clinical setting is a cornerstone of safe, effective reproductive medical practice. Fortunately, simple, and proven strategies such as social distancing, handwashing, and face masks are effective in preventing person to person spread. Some approaches to protect patients and staff during the pandemic are universal (i.e. symptom screening prior to a procedure), while other interventions and screening strategies differ according to local COVID-19 prevalence. Thresholds vary but some localities (such as New York City) increase public health measures when regional test positivity

exceeds 3%. It remains critical to ensure adequate access to PPE for staff and access to care for reproductive medicine patients given the prolonged nature of this pandemic that is expected to extend through 2021. Practitioners can find information on regional COVID-19 test positivity and case counts through the CDC (<https://www.cdc.gov/coronavirus/2019-ncov/covid-data/covidview/index.html>) and state or local public health authorities.

UPDATE ON SARS-COV-2 VACCINES

As of October 5, 2020, there were [42 candidate SARS-CoV-2 vaccines undergoing evaluation in human clinical trials around the world](#). Nine of these vaccine candidates are in late stage phase III randomized controlled clinical trials (RCTs) in tens of thousands of participants to test the safety and efficacy of vaccination against COVID-19 compared to placebo or an unrelated vaccine. Three of these candidates are the farthest along in reaching target enrollment goals for products that will likely be submitted to the FDA in the coming months for approval. Of note, current COVID-19 vaccine studies exclude women who are pregnant or breastfeeding and many have contraception requirements for participants (2).

Similarities and differences between these three vaccine candidates are briefly discussed below. In general, immunogenicity is assessed by measuring the presence and magnitude of binding and neutralizing IgG antibodies present 2-4 weeks after the vaccine series is administered. The duration of protection provided by COVID-19 vaccination is unknown at this time. Clinical trials will follow participants who received the vaccine for two years to help establish these important durability endpoints. The most common clinical endpoint for current vaccine trials is the incidence of symptomatic PCR-confirmed COVID-19 infection.

- 1) Moderna/NIAID mRNA vaccine. This vaccine uses a new messenger RNA-based technology to produce genetic material that is incorporated into human cells to produce viral proteins. These proteins induce an immune response against the surface spike glycoprotein of SARS-CoV2 that protects recipients against infection. In current trials, vaccination requires a two-dose series separated by four weeks. It also requires cold chain storage (-20°C) until administration since it is encapsulated by lipid nanoparticles for cell entry that can degrade at room temperature. The trial is enrolling 30,000 participants (3).
- 2) Pfizer/BioNTech mRNA vaccine. The Pfizer/BioNTech product is another mRNA-based vaccine that is incorporated into cells to produce viral surface spike proteins that induce an immune response. It is a 2-dose vaccine series separated by at least three weeks and it has similar cold chain storage requirements, although lower temperatures (-70°C) due to lipid nanoparticle encapsulation. Enrollment of 30,000 participants in the phase III trial was completed in mid-September and the study is in the follow-up stage now. The company also plans to expand study eligibility criteria to enroll 44,000 participants. The expansion phase will include people living with HIV, hepatitis B, hepatitis C, and adolescents age 16-18 years (4).
- 3) Astra Zeneca/Oxford ChAdOx-1 vaccine. This vaccine platform uses a non-replicating adenoviral vector to carry coronavirus genetic material into the cell where it can induce a targeted immune response to the spike protein. The current study is testing the efficacy of one and two dose vaccine series in 30,000 participants. Similar adenoviral vector vaccines have been used in the past and this type of vaccine can be manufactured at large scale with fewer restrictive cold chain storage requirements compared to mRNA vaccines (5).

It is not yet clear which of these vaccines will become available or when. Likely, several vaccines will be rolled out over a period of months. They may vary in their efficacy both in general and within certain groups such as the elderly or those with certain comorbidities. It is anticipated that the ramp-up period

will be gradual, and distribution will not be evenly allocated. The [National Academies of Sciences, Engineering, and Medicine have proposed a framework](#) for the equitable allocation of vaccine utilizing a phased approach. Frontline healthcare workers would be first in line, followed by those with significant comorbid conditions. From there, older adults and those with moderate comorbid conditions would be next in line. Healthy young adults would receive the lowest priority. The majority of reproductive care patients will fall into these lower priority groups, though some may fall into a higher priority tier based on their profession or personal health status.

Given that reproductive care patients will generally not be first in line for vaccination, it is important that mitigation efforts, including social distancing and mask wearing, continue. Indeed, there will be an overlap of many months during which immunity is gradually conferred and the ongoing protective effects of vaccination are assessed. During this window, public hygiene measures, as well as robust testing strategies--including in asymptomatic patients--will continue to be critical.

Vaccine hesitancy has emerged as a potential barrier to widespread vaccination efforts (see also section on Mental Health below). There are a number of causes for this, including a lack of clarity and transparency regarding guidelines for vaccine approval by federal agencies (6). [A national survey conducted by the Pew Research Center in early September](#) found that slightly over half of Americans (51%) would definitely or probably get a vaccine to prevent COVID-19 if it were available today, compared to 72% in May of 2020, a 21 percentage point drop. Similar findings were reported by [a poll of WebMD readers](#), which found acceptance of a COVID-19 vaccine to be 55%.

Among the challenges that physicians will face when recommending COVID-19 vaccination is the likelihood that data on vaccine safety for pregnant women and possibly also for those contemplating pregnancy will not be available for many months or longer. Reproductive care specialists will play a critical role in conveying the importance of vaccination to their patients and their staff. For this to happen effectively, reproductive care providers must be reassured of the safety and efficacy of the various vaccines offered. Once established, the benefits of vaccination for fertility patients will likely outweigh the risks given emerging data suggesting that pregnant women might be at increased risk for severe coronavirus disease (7). Physicians should encourage their patients who are pregnant or planning on becoming pregnant to participate in vaccine trials and post marketing surveillance. This will help inform our understanding of vaccine efficacy in this population. Additionally, once vaccines are found to be safe and efficacious, physicians and medical staff at reproductive centers should be strongly encouraged to become vaccinated in order to protect their patients and themselves.

To enhance the value of the vaccination data for the reproductive population, [ASRM and other women's health organizations](#) support inclusion of pregnant women and those contemplating pregnancy in vaccine trials so that such women may benefit from equitable protection from the risks of vaccination. There is no way to theoretically ascertain vaccine safety in these unique groups, and their participation in vaccine trials will allow for greater oversight and earlier detection of potential maternal and fetal risks. This is a more accurate and safer approach when contrasted with post-market surveillance and data collection. Early inclusion will also allow this scientifically complex population to benefit from the results of vaccine trials in real time as opposed to transferring the potential risks of vaccination to the clinical setting.

Many of the randomized vaccine trials that are underway have independent data safety monitoring boards (DSMBs) in place. Their members include statisticians, clinicians, ethicists, and patients' representatives. The DSMBs convene at predetermined times to review unblinded results and have the power to recommend continuation or termination of the study based on the evaluation of these results. There are typically multiple reasons a DSMB may recommend stopping of the trial: safety trepidations, exceptional benefits, and ineffectiveness. All criteria are predetermined, and it is generally the case that study sponsors do not participate in these discussions.

UPDATE ON THERAPEUTICS OPTIONS FOR COVID-19

Below we review updates and guiding principles to the therapeutic options for COVID-19, as well as available evidence supporting use of therapeutics in specific populations; evidence demonstrating no efficacy and possibly harm; and evidence showing definitive harm, for specific therapeutics. Finally, we discuss management of fear and rumor regarding the use of therapeutics for COVID-19.

- **Guiding Principles and Overview of Therapeutic Options for COVID-19:** When considering therapeutic options for COVID-19, several guiding principles shape the framework of understanding evidence-based assessments of available options and treatment recommendations.
 - Scientific data regarding effectiveness and safety of available treatment options is constantly evolving. The optimal management of individuals with COVID-19 will continue to change as we gain a deeper understanding of pathogenesis and the impact of interventions on progression or resolution of infection.
 - When available, evidence from RCTs provides the highest level of scientific evidence to assess therapeutic benefit or harm. Other common study designs (such as retrospective cohort studies or case series) are less rigorous in terms of potential bias, and they provide a lower level of evidence.
 - Treatment decisions should be based on the highest levels of scientific evidence, ideally RCTs.
 - Current treatment options shown to have efficacy for COVID-19 infection are limited to inpatients with moderate to severe disease. Several ongoing studies are focused on outpatient treatment and prophylaxis, but no effective therapy for mild disease or prevention has been identified to date.
 - COVID-19 treatment recommendations for inpatients vary based on the severity of disease, the elapsed time since initial infection, and the degree of supportive care required. In general, antiviral medications tend to have a stronger impact early in infection when the viral load is most elevated. During the later phases of illness, the inflammatory process drives many disease manifestations.
 - At the time of this publication, women who are pregnant or interested in becoming pregnant are candidates for the same inpatient COVID-19 treatment options as non-pregnant women (see also below). The importance of including both pregnant and lactating women in clinical trials is critical. Data are emerging about transplacental drug passage and the potential for fetal risk (8).

The summaries below are meant to serve as brief snapshots of current evidence for fertility providers. For more detailed information, please consult an infectious disease expert and the [Infectious Diseases Society of America \(IDSA\) guidelines](#).

- **Interventions with Evidence of Benefit for COVID-19 in Certain Patient Populations**
 - **Remdesivir:** Remdesivir is an antiviral medication that has been found to be most effective for inpatients with moderate-severe disease who require supplemental oxygen. Intravenous remdesivir therapy is provided for 5-10 days, based on the severity of infection. Medication supply is not consistent in all U.S. facilities. Remdesivir shortens

time to clinical improvement but has not impacted mortality rates to date (9). Studies are ongoing to specify additional relevant populations for treatment, duration of therapy and timing to optimize treatment outcomes (10).

- **Corticosteroids:** Corticosteroids have been used for years in the management of Acute Respiratory Distress Syndrome (ARDS) and septic shock. The release of the RECOVERY RCT results that studied the utility of dexamethasone therapy among COVID-19 inpatients in the United Kingdom (UK) changed management as soon as it was published due to impressive reduction in mortality in patients with moderate to severe disease (11). However, we should note that there was no benefit in those not receiving respiratory support--and the possibility of harm could not be excluded. The application of this therapy is currently limited to inpatients requiring oxygen where the “Number-Needed-to-Treat” (NNT) per one life saved was 12 (12).
- **Convalescent plasma (CP):** CP therapy refers to the infusion of antibody-containing plasma from an individual who was previously infected with COVID-19. In retrospective studies, CP has been shown to be effective in certain specific populations of inpatients with COVID-19 (13). CP with high antibody titer may be most beneficial to patients with COVID-19 who are in the early stage of disease progression, are able to breathe without ventilatory support, and who have a high SARS-CoV-2 viral load (14, 15). Current IDSA guidelines recommend CP only in the setting of a clinical trial. Pregnancy is not a contraindication to use of CP. Several case reports have shown improvement in pregnant women with acute SARS-CoV-2 infection who were treated with CP (16-18).
- **Monoclonal antibody therapy:** Monoclonal antibody therapy refers to a form of immunotherapy in which an antibody binds to a specific cell or protein in such a manner so as to induce an immune response in which the patient’s immune system is stimulated to attack those cells. There is some evidence that the antibodies may result in a more rapid decrease in viral load among non-hospitalized patients. Current IDSA guidelines conditionally recommend against the use of mAB for treatment of COVID-19 based on low certainty of meaningful benefit.
- **Interventions without Evidence of Benefit for COVID-19 AND Some Suggestion of Harm**
 - **Interleukin-6 (IL-6) inhibitors:** Elevated IL-6 levels have been associated with mortality from COVID-19 (19). Specific inhibitors of IL-6, such as tocilizumab, have been suggested as potential therapy. While some case reports and retrospective studies suggested benefit, a recent systemic review and meta-analysis cautions that the quality of the data are poor, and usage should not occur outside of a clinical trial (20).
 - **Hydroxychloroquine and chloroquine:** Hydroxychloroquine and chloroquine have theoretic benefit against COVID-19. Both interfere with binding of the virus to the angiotensin-converting enzyme 2 (ACE2) receptor, therefore potentially decreasing infectivity. There has been much media attention paid to off-label use of hydroxychloroquine, with and without azithromycin and zinc, or with lopinavir/ritonavir (see below). Several clinical trials have now been published and none have shown benefit (21, 22). Potentially lethal side effects of hydroxychloroquine include QT prolongation and sudden death, especially in the setting of low serum concentration of potassium or magnesium. Ocular and retinal toxicity have also been reported with chloroquine and hydroxychloroquine (23). Additionally, azithromycin, a macrolide antibiotic, is generally

well tolerated, but when used in combination with chloroquine is associated with cardiac electrophysiologic changes in a dose and concentration-dependent manner (24).

- **Lopinavir/ritonavir:** After the emergence of severe acute respiratory syndrome (SARS) in 2003, screening of approved drugs identified lopinavir, a human immunodeficiency virus (HIV) type 1 aspartate protease inhibitor, as having in vitro inhibitory activity against SARS-CoV, the virus that causes SARS in humans; ritonavir is combined with lopinavir to increase its plasma half-life through the inhibition of hepatic cytochrome P450 action. A recent RCT of lopinavir/ritonavir in 199 patients with laboratory-confirmed SARS-CoV-2 infection observed no benefit with the combination treatment beyond standard care (25).
- **Interventions without Evidence of Benefit for COVID-19 AND Evidence of Harm**
 - With few effective therapeutics and no preventative vaccine available, a wide range of treatments have been proposed that range from off-label application of FDA-approved medications to homeopathic remedies of dubious etiology. Borrowing incorrectly from the compassionate use of medications, when the outcome is often fatal, and all other treatments are deemed futile, harmful agents have sprung up as purported treatments of COVID-19.
 - Harmful practices include ingestion of bleach and methanol, as well as use of UV light on skin. Additionally, the U.S. National Institutes of Health (NIH), [National Center for Complementary and Integrative Health](#) states that there is no medical benefit from ingested colloidal silver and described the significant harm that ingestion can cause.
 - Authoritative health agencies have begun to address this segment of proposed treatment. For example, the WHO Resource, [Coronavirus disease \(COVID-19\) advice for the public: MythBusters](#), refutes misinformation with facts and has a portal for the general public to report false information.
- **Fear and Rumor Control Regarding Use of Therapeutic Options for COVID-19:**
 - Beyond misinformation about medical treatment of COVID-19, a pandemic in the age of social media is ripe for a wide range of rumors and misinformation. Governmental agencies work to keep the public informed and quench rumors. Healthcare professionals should share accurate information with their patients and encourage the reporting of false information. See **Table 2** for resources on addressing rumors and misinformation.

Table 2. Resources on addressing rumors and misinformation

Agency	Resource
○ Federal Emergency Management Agency (FEMA)	○ Coronavirus Rumor Control
○ Centers for Disease Control (CDC)	○ Stop the spread of rumors
○ National Institutes of Health (NIH)	○ Science, Health and Public Trust
○ Johns Hopkins Medicine	○ Coronavirus Myths, Rumors and Misinformation
○ World Health Organization	○ Mythbusters ○ Reporting False Information

UPDATED LABORATORY GUIDANCE FOR COMMENCING OR CONTINUING ART OPERATIONS DURING THE ONGOING COVID-19 PANDEMIC

Assisted Reproductive Technology (ART) Laboratories have been affected in wide-ranging ways by the COVID-19 pandemic, from being forced to completely shut down and shelter in place, while caring for precious frozen inventory, to opening up safely and maintaining the quality of patient care under social distancing and other safety guidelines. In May 2020, a document created by representatives of the Society for Assisted Reproductive Technology (SART), the Society for Reproductive Biologists and Technologists (SRBT), and the College of Reproductive Biology (CRB) was released--[Laboratory guidance for commencing or continuing ART operations during the ongoing COVID-19 pandemic](#). This guidance was [updated October 5, 2020](#). Below are a few of the key additions or updates:

- Updated recommendations for creating laboratory/clinic-specific policies on acceptable mask-wearing.
- Updated recommendations for the development of policies for the management of any individual who has suspect symptoms or has contact with a confirmed COVID-19 case, including who to report findings to, when to stay home, and for how long.
- Addition of an expanded staffing section. It has been the experience of many clinics, including those that are reopening and those that have continued operations, that patient volume has increased in recent months to levels often exceeding those experienced before the pandemic. Combined with the complexities of current operating conditions, increased prophylaxis, and individual stressors, this additional burden creates a far more challenging work environment than has been present in the past. Therefore, the updated recommendations note the following:
 - Laboratory staff should be provided with the resources for emotional well-being, such as access to support groups, informational materials, and adequate time for recuperation following strenuous work periods. A physically healthy team only operates effectively if the members are also emotionally and mentally supported.

Additional guidelines can be found in the [full updated guidance](#).

UPDATE ON MANAGING MENTAL HEALTH DURING COVID-19

The anxiety and threat of COVID-19 is increasing as states re-open, “caution fatigue” increases, upticks in transmission rates develop, and as we approach the “flu season”. As we wait for an efficacious vaccine and safe therapeutics, behavioral changes and support for public health interventions are the most powerful defenses we hold in order to mitigate the threat of the pandemic. Psychology and the social sciences are powerful resources to explain risky behaviors and provide important information for leaders to combine with recommendations from epidemiologists and public health experts to promote and reinforce safe individual and social behaviors.

Van Bavel and colleagues enlisted a multidisciplinary team of 41 international experts, including psychologists, economists, sociologists and others, to draft a summary of research findings in multiple areas including threat perception, social context, science communication, aligning individual and collective interests, leadership, and stress and coping in order to address the COVID-19 response (26). Findings showed that messages that emphasize benefits to the recipient, focus on protecting others, and aligning with the recipient’s moral values tend to be more persuasive, and that when asking people to

behave in a pro-social or altruistic way it helps if they have a respected person modeling this behavior and if they receive approval from their social group.

Van Bavel and Sjastad researched optimism biases about risk prediction, with results showing evidence of a “best-case heuristic” bias towards the risk of infection and the waiting time for a COVID-19 vaccine, such that both factors were underestimated (27). Findings about future infection risk were associated with political beliefs: conservatives in the U.S. showed less concern about the risk of infection and a belief in national superiority in U.S. preparedness, while liberals were more likely to show emotional distress and support mitigation and pro-social strategies.

As the reality of the availability of vaccines approaches there are concerns that “vaccination hesitancy or refusal” may extend rather than shorten the pandemic. There is evidence that vaccination behaviors will vary by race and ethnicity, suggesting it may be important to tailor messaging for different groups. For example, Duquette and colleagues found that non-white or Hispanic respondents indicated that their intention to vaccinate is over 50% higher in response to a message emphasizing pro-sociality and the safety of others (28).

To overcome the risks of the pandemic, we need to promote pro-social behaviors and the development of resilience and positive psychological changes after facing the negative effects of COVID-19 (29). Studies by Paul (30) and Yu (31) and their colleagues have shown that patients experiencing infertility can achieve such changes and that social support is important. Prime and colleagues demonstrated the centrality of family relationships and shared beliefs in buffering against the risks of COVID-19 and promoting resilience for children and families (32). This information reinforces the powerful positive influence that fertility clinics can provide for patients and healthcare providers and clinic staff alike.

Suggestions for patients:

- Be a powerful role model.
- Encourage patients to ask questions.
- Inquire about beliefs in mitigation.
- Emphasize altruistic and pro-social mitigation behaviors.
- Reinforce accurate information about mitigation and protection procedures.
- Reinforce the importance of having social support.
- Suggest reliable sources of information.
- Provide a referral list of mental health professionals.

Suggestions for healthcare providers and clinic staff:

- Be aware of the potential for burnout and work overload.
- Emphasize the importance of self-care.
- Assist, where possible, in providing coverage for family/child related issues.
- Create an atmosphere of positivity within the work environment.
- Emphasize belonging and social support within the clinic.
- Encourage group activities like yoga, if they can be done safely in accordance with social distancing guidelines.
- Provide a referral list of mental health professionals.

Finally, it is important to emphasize that senior healthcare providers who show positive attitudes towards seeking mental health support empower others to feel comfortable reaching out for the help they need.

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