

# Women's sexual/reproductive health and access challenges amid COVID-19 pandemic



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## ABSTRACT

Challenges to women's health in the context of COVID-19 is based on their unique experience shaped by sex/gender. This paper provides clinical practice-, research-, and policy-related commentary on key COVID-19 pandemic factors impinging on women's sexual/reproductive health (SRH) and care access, particularly in the context of pregnancy, childbirth, sexual/gender variations, and concurrent chronic conditions.

Women tend to have less severe outcomes from COVID-19 than men but certain sub-groups are more vulnerable than others. Yet few United States studies have disaggregated the data accordingly. Forming a basis for well-informed policy generation, needed is more research specific to COVID-19 vulnerability/risk factors and outcomes for groups of women by age, race and socioeconomic and cultural determinants. Access to SRH-related clinical services has been diminished during the pandemic, making a priority for restoring/preserving inclusive SRH care for women, for example, family planning, healthy pregnancies, age-related disease screening and treatment, and health/wellness promotion.

Important concerns include severity of the disease, morbidity in pregnant and postpartum women, increased risk to the fetus, virus transmission to fetus or newborn, and impact of lack care access. Uncertainty in current knowledge is heavily related to lack of sex specific data.

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The SARS-CoV-2 pandemic, commonly referred to as the coronavirus disease 2019 (COVID-19) pandemic, and its consequences have and are continuing to impact women by amplifying unique sex and gender health-related challenges and interfering with access to support and health services. This is particularly so for women who are socio-culturally disadvantaged or in sociocultural minority groups. In this commentary by the AAN Women's Health Expert Panel members, we aim to briefly outline key extant knowledge regarding COVID-19 pandemic sex and gender factors impinging on women's health and access to care as

underpinnings for research, practice, and policy change needs.

Prerequisite to comprehending women's health in the context of COVID-19 is consideration of their unique experiences, shaped by sex and gender ([National Institutes of Health Office of Research on Women's Health, 2020](#)). Sex refers to the biological and physiologic dimensions used to classify people as female or male as evident at birth, whereas gender refers to the continuum of culturally constructed roles and behaviors associated with women, men and gender spectrum diversity ([Spagnolo, Manson, & Joffe,](#)

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2020). Sex as a biological variable in biomedical research is established, but COVID-19 data in the United States (U.S.) includes few reports of disaggregated data analyzed by sex. Analysis of data by sex and where appropriate by gender sub-groups is needed to build a more comprehensive, clinical knowledge base (Klein & Flanagan, 2016; Fischer, Jung, Robinson, & Lehmann, 2015; Takahashi et al., 2020) to inform clinical care and further research.

### Sex-related COVID-19 Severity

Sex and gender differences related to viral infection susceptibility, disease manifestation and trajectory are not completely clear. Fewer women than men have severe COVID-19 outcomes (i.e., lower rates of hospitalization, admissions to intensive care and fatalities) (Alwani et al., 2021; Klein et al., 2020; Scully, Haverfield, Ursin, Tannenbaum, & Klein, 2020). Of the 15% of COVID-19 patients with severe manifestations, women are seen to have earlier and greater antibody responses than men and constitute about one-third of patients admitted to ICUs, requiring mechanical ventilation or dying (Mauvais-Jarvis, Klein, & Levin, 2020). The relative risk of dying from COVID-19 is higher in men across all age groups until the range of 60 to 69 years (Alwani et al., 2021). One limitation is that U.S. sources have been slow to disaggregate by sex, age, or race so that most data are from other countries.

Evidence is emerging regarding a wide range of symptoms such as dyspnea, extreme fatigue, tachycardia, and mental fog that persist beyond the acute phase of COVID-19 (longer than 3–weeks), referred to as “Long-COVID” or “Chronic COVID Syndrome.” As yet poorly understood, women appear disproportionately affected (14.9% as compared to 9.5% men). Factors that are seen to increase the odds, such as the presence of pre-existing asthma conditions more prevalent in women, (Alwani et al., 2021) warrant much more study.

Not outlined comprehensively for this paper, but key areas of COVID-19 sex differences are basic viral mechanisms, comorbid conditions, and sex hormone influences. For example, as part of basic mechanisms, angiotensin-converting enzyme 2 (ACE2) acting as a SARS-CoV2 receptor and transmembrane protease serine 2 (TMPRSS2) as a facilitator for cell attachment and entry are observed to correlate with disease severity and TMPRSS2 expression is observed higher in bronchial epithelial cells in males. Co-morbid conditions such as chronic obstructive pulmonary disease, diabetes, cerebrovascular disease, cancer and hypertension are associated with worse COVID-19 outcomes and more men have these conditions (Klein et al., 2020). Sex hormone (estrogen, progesterone, testosterone) receptors are prevalent on most immune system cells with complex and varied modulation effects not yet

completely understood. However, their potential as a basis for interventions has been raised (Mauvais-Jarvis et al., 2020).

In summary, data show greater numbers of men exhibit the most negative Covid-19 trajectories but for those women with severe COVID-19, more may experience long range consequences, similar to other chronic fatiguing conditions more prevalent in women, (e.g., chronic fatigue syndrome, fibromyalgia). More investigation of the factors underlying sex and gender differences in COVID-19 severity using a sex- and gender-informed approach (Spagnolo et al., 2020) is needed.

### Women’s Sexual and Reproductive Health amid COVID-19

During the current pandemic, myriad sexual and reproductive health (SRH) factors have been documented on a global scale, for example, the WHO response (WHO, 2020). Lessons learned from past epidemics suggest gender inequalities are common globally across a range of SRH issues (Chattu & Yaya, 2020). Important research areas include disease influence in pregnant and postpartum women; increased risk or demise of the fetus; virus transmission from infected women, pregnant or not; and access to relevant health care services (Tang et al., 2020). Health care delivery factors include access to SRH services and supplies during restricted activities and quarantine plus diversion of essential health care workers from SRH services to emergency screening and care of COVID patients. Early impacts of the COVID-19 pandemic demonstrated women had increased worry about ability to pay for (27%) and obtain contraception and other SRH services (28%) (Lindberg, Bell, & Kantor, 2020); worry is fueled by losing income and/or health insurance due to restaurant or retail business closures.

### Pregnancy and Childbirth

Ongoing COVID-19 pregnancy and childbirth factors range from prevalence, symptoms experienced, comorbidities, birth-related vertical transmission, and transmission in breast milk. Pregnant women are particularly susceptible to infectious diseases, and previous evidence showed viral infections may negatively affect pregnancy outcomes (Mehta, Chen, Hardy, & Powrie, 2015). In a review of 11 studies of pregnant women (N = 9,032) with COVID-19 in China, pregnant women exhibited significantly milder symptoms of fever (28% pregnant women: 83% nonpregnant women), cough (51%:82%), and dyspnea (21%:31%). These data concur with findings of a previous study in China (Liu et al., 2020), but may, in part, be due to the younger age of the pregnant patients compared to the

nonpregnant group. Scarce data can be found about COVID infections in early pregnancy, likely biased by the absence of tests performed (de Sousa et al., 2020). Early data were unclear as to whether pregnant women have increased risk of severe complications from COVID-19, but a large study from the CDC indicated increased risk. Among the 450,000 studied, admission to an intensive care unit, invasive ventilation, extracorporeal membrane oxygenation, and death were all more likely among pregnant compared to non-pregnant women of similar reproductive age (Zambrano, Ellington & Strid, 2020; DeSisto et al., 2021). Of note is the death rate was disproportionately high among non-Hispanic Black individuals.

Evidence is scant for the effects of COVID-19 infection on outcomes with normal or complicated pregnancies. Compared to a global preterm delivery rate of between 5% and 18% (WHO, 2020), a review of 11 studies of pregnant women with COVID-19 ( $N = 9,032$ ) showed a preterm delivery rate of 29% (Yee et al., 2020). This COVID-19 preterm delivery rate is similar to rates reported for other corona virus outbreaks, for example, with severe acute respiratory syndrome (20%) and Middle East respiratory syndrome (32%). In a review paper of pregnant women with COVID-19, the pregnancy comorbidities of gestational diabetes and fetal distress didn't influence outcomes of the pregnant women or their newborns. The main COVID-19 symptoms were fever (53%,  $n = 363$ ), cough (42%,  $n = 290$ ), dyspnea (12%,  $n = 83$ ) and (12%,  $n = 83$ ) tested positive but were asymptomatic (de Sousa et al., 2020). Higher rates of hospital admissions for preeclampsia in pregnant women with COVID-19 have been reported (Di Mascio et al., 2020) but data remain insufficient for establishing a clear relationship. Moreover, a COVID-19 diagnosis documented during delivery hospitalization was associated with an increased risk for stillbirth in the U.S., with a stronger association during the period of Delta variant predominance (DeSisto et al., 2021).

Unsettled questions are whether women who get COVID-19 during pregnancy pass on the disease and immunity to their newborns prior to or at the time of delivery. An ongoing controversy is whether mother to fetus *in utero* transmission of the COVID-19 virus (i.e., vertical transmission) occurs. Prior corona virus infection observations did not provide definitive evidence about vertical transmission; however, influenza and respiratory syncytial viral vertical transmission has been reported (Manti et al., 2017; Takahashi, Kitajima, Kusuda, Morioka, & Itabashi, 2011). Findings from a few case studies failed to provide evidence for intra-uterine transmission from pregnant women with COVID pneumonia in the third trimester (Alzamora et al., 2020; Chen et al., 2020), and a meta-analysis supported the lack of evidence (Di Mascio et al., 2020). Although scientists say vertical transmission of COVID-19 can occur, the exact risk and mechanism is uncertain. Apparently, the presence of the virus on the placental surface does not always indicate

placental infection; viral infection of placental cells does not necessarily mean transmission to the fetus; and when fetal infection does occur, responses are varied and infection does not always mean fetal damage (Wastnedge, 2021). In Pennsylvania, of 1,500 women who gave birth from April to August, 2020, 83 tested positive for COVID-19 antibodies. After birth, 73 of their babies had cord blood positive tests for COVID-19 antibodies (Caron, 2021). Women who tested positive for COVID-19 earlier in their pregnancy appeared to transfer more antibodies to their babies than those who tested positive closer to delivery.

Whether the virus is transmitted through breast milk also remains uncertain and potentially confounded by transmission to baby in other ways, for example, from mothers or hospital personnel during postpartum care. One case showed COVID-19 viral RNA detection in the milk of one pregnant woman and a subsequent COVID-19 positive test for the baby, despite the mother following safety precautions during breastfeeding (surgical mask, washing hands etc.). Other limited data are suggestive that COVID-19 from infected mothers is not transmitted through breast milk (Chen et al., 2020). Current guidelines advocate mothers continue breastfeeding even if they test positive in the postpartum period. Hand washing and basic hygiene should be followed and women with confirmed COVID-19 should wear a medical grade mask when breastfeeding (Mullins, Evans, Viner, O'Brien, Morris, 2020). At delivery and postpartum sites, medical team members should wear the recommended protective gear (de Sousa et al., 2020).

Nearly all vaccines are viewed as safe to be given in pregnancy since generally benefits outweigh potential risks (Rasmussen & Jamieson, 2021). Pregnant women traditionally have been omitted from clinical trials resulting in lack of scientific data on safety of drugs and vaccines for women and their unborn children. Since vaccines are generally considered to be low risk even without rigorous clinical trial data, immunization of pregnant women has been encouraged for influenza and other diseases since the 1960s. Similarly, there is limited evidence about the effects of vaccination on lactating women (Adhikari & Spong, 2021). Nevertheless, the vaccine lipid of mRNA vaccines is unlikely to enter the blood stream, reach breast tissue and even so, transfer into milk. If present in breast milk, it would be digested by the child and unlikely to have biological effects (Academy of Breastfeeding Medicine, 2021). The American College of Obstetricians and Gynecologists, Society for Maternal-Fetal Medicine, and the CDC support making COVID-19 vaccine available to pregnant and lactating women (CDC, Nov. 19, 2021).

Emerging data show higher pre-term delivery rates and possible stillbirths in pregnant women with COVID-19 but limited clarity on vertical and breastfeeding transmissions. More research is needed in these areas to inform effective clinical screening, treatment protocols and policy considerations. Risk/

benefit data regarding the effect of vaccines during pregnancy should underpin public health advocacy of vaccines for protecting pregnant women and their newborns.

## Sexual and Gender Variation Groups

Investigation into the COVID-19-related health impact on sex and gender variation (SGV) individuals is meager but shows disproportionate impact from the pandemic. Given the complex intersect of sex, sexual orientation, gender identity, and sexual partner behaviors, integrating evidence across studies is challenged by the variations in group and sub-group distinctions. Generally, subgroups include Lesbian, Gay, Bisexual, Transgender, Two-Spirit, Queer, Intersex, and Asexual (LGBT2SQIA+). Although lack of subgroup data disaggregation obscures insights into specifically women's health, some data have emerged during the pandemic for cisgender SGV women (e.g., lesbian or bisexual women, women who have sex with women or identify as other than completely heterosexual). Compared to cisgender heterosexual counterparts, SGV women have pre-existing vulnerabilities and environmental risks that are compounded in context of the COVID-19 pandemic (Gibb et al., 2020). Discussed here are: (a) excess prevalence of certain chronic physical and mental health conditions, (b) engagement in health-jeopardizing behaviors such as hazardous substance use, and (c) high stress-related pressures.

Superimposed on exposure to COVID-19 for SGV women are accentuated susceptibility for asthma, other respiratory diseases, urinary tract infections, Hepatitis B and C, and perhaps cancer, and heart disease diagnoses (Lick, Durso, & Johnson, 2013; Meads, Martin, Grierson, & Varney, 2018), as well as depressive mood, anxiety, and suicidal ideation (Schulman & Erickson-Schroth, 2019). Compared to heterosexual cisgender persons, SGV groups show less robust infectious disease defense markers (systemic inflammation levels, day-to-day cortisol variation and cortisol reactivity), cardiovascular functioning, and allostatic load biomarkers (physiological indicators of cumulative burden of chronic stress and life events) (Gibb et al., 2020). Oppressive social circumstances vs conditions inherent to individuals is implied as the problem source.

Known to be associated with COVID-19 disease severity (Centers for Disease Control, 2021), a further vulnerability to negative COVID-19 impact for SGV women is heightened rates of hazardous substance use, i.e., alcohol, other drug use, and tobacco. A scoping review of alcohol and other drug use showed SGV women as more likely than heterosexual women to drink, drink heavily, and experience alcohol-related problems and alcohol-use disorders (Hughes, Veldhuis, Drabble, & Wilsnack, 2020), likely contributing to liver, and heart diseases. Supported by

less research than for alcohol use, more SGV women engage in drug misuse, including marijuana (now legal in many states) and have diagnosed drug use disorders (Bochicchio et al., 2021; Hughes et al., 2020). Relative to tobacco use, one study showed that women identifying as lesbian or bisexual and reporting attractions to same-sex or both-sexes when compared to fully heterosexual women reported higher use for six tobacco products and were highest out of all SGV subgroups studied (including men) for cigarette and e-cigarette use (Wheldon, Kaufman, Kasza & Moser, 2018).

High stress is linked to poorer health status within minority populations, including SGV groups. It is seen to embody stigma, systemic discrimination, other forms of structural violence and marginalization and typified by disparities in access to vital resources such as educational and employment opportunities, wealth, housing, health care, social support, and political power (Gibb et al., 2020). In general, more SGV individuals are likely to report economic insecurity plus limited access to social capital, social and health education, supportive community resources, and culturally congruent and sensitive health care. The COVID-19 restricted commerce, movement, and gatherings heightened social isolation, and job loss, among other issues. SGV groups report greater psychological stress associated with social distancing than heterosexuals (Drabble & Eliason, 2021). A report of a national LGBTQ family poll showed that more families identifying as LGBTQ compared to others reported serious financial difficulties (66%:44%) and job loss (64%:45%) (Movement Advancement Project, 2020). The disproportionately greater numbers that work in highly impacted employment sectors like the service industry exacerbate this dynamic.

Intensified by pandemic dynamics is the well-documented, pre-existing difficulty SGV groups have with access to health care free of discrimination. Evidence from a three-cohort study, indicated that compared to adults who identified as completely heterosexual, those identifying as mostly heterosexual, bisexual or gay/lesbian disproportionately reported: (a) experiencing past adverse health care experiences; (b) delaying care; (c) relying on emergency department urgent care; and (d) having unstable health insurance (Tabaac et al., 2020). Indeed, the latter SGV groups were 2 to 3 times more likely to report delaying care due to past negative health care experiences. Within the pandemic, specialized gender-affirming care has been severely curtailed, resulting in delays or cancellations of medications, surgeries, and other supportive care and closure of outreach programs (e.g., for illicit drug use treatment) (Gibb et al., 2020). Paramount is reversal of these outcomes and acceleration of health care delivery and policy reform toward culturally congruent and inclusive care for vulnerable groups, including for SGV individuals.

In summary, more data disaggregated to reveal the vulnerabilities of women representing SGV sub-groups to COVID-19 severity outcomes is sorely needed.

## Access to SRH Services for Women

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Invoking negative influences on health care available to women are pandemic-related supply disruptions, health care personnel diversions or site shutdowns. Supply chain interruptions for contraceptives curtailed access to ongoing or emergency contraception. Shutdowns have meant no access to care for unwanted pregnancies (Gausman & Langer, 2020) or for prevention and treatment of sexually transmitted infections, including HIV (Cousins, 2020). These dynamics have aggravated the social challenges of unwanted pregnancies, prevalence of sexual disease acquisition/transmission and likely boosted risk of future infertility. The latter in addition to concerns regarding potential infertility issues in women who acquire COVID-19 infections (Sun & Yeh, 2020). Access to abortion services has been curtailed in many countries and U.S. states due to movement restrictions and lack of protective equipment for providers (Rizvi & Rizvi, 2020). Governments of Nepal and India ordered national movement lockdowns for several months that prevented providers and clients from attending clinics, thus restricting access to contraceptive or abortion services. As well, many U.S. states declared time-sensitive abortions as non-essential or elective; by 2020, as many as 11 states had introduced legislation to restrict abortion access (Jones, Lindberg & Witwer, 2020). However, in the U.S. after pandemic onset, telehealth consultations for early and medical abortions reportedly increased by 25% (Cousins, 2020). South Africa, Ethiopia and Nepal already had in place the provision of medical abortion at home by nurses via telehealth consultation. During and after the COVID-19 pandemic, it remains to be seen whether/how telehealth will circumvent barriers to safe abortion access.

A further interference with health care access is the high demand for life-saving health care of COVID-19 infected individuals, which has diverted care workers and economic resources away from SRH services and raised concerns for the long-range effects on women's health (Allen, Zoe, Coyne-Beasley, Erwin, & Fletcher, 2020; Chattu & Yaya, 2020; Lindberg, Vandevusse, Mueller, & Kirstein, 2020). Particularly in under-resourced areas, such diversion leaves low-income women impoverished for ongoing care. In some countries, SRH services were not classed as essential and closed. Marie Stopes International operating in 37 countries predicted that SRH services closures could result in as many as 9.5 million girls and women losing access to contraception and safe abortion in 2020 and could result in as many as 2.7 million unsafe abortions and 11,000 pregnancy-related deaths (Cousins, 2020).

Even if SRH services remain available, loss of income, lack of health insurance plus increased role demands, mainly from "stay at home" orders during the pandemic, has led to patient delays in visiting SRH care providers. Some of this delay is attributed to

women's fear of being unable to afford SRH care. According to a pandemic-related Guttmacher survey of reproductive health experiences, one in three women reported delaying or canceling a health care provider visit for SRH care or had trouble obtaining birth control. More Black (38%) and Hispanic (45%) women than White women (29%) and more queer (46%) than straight women (31%) reported SRH interferences. Also, lower-income women were more likely than higher-income women to report delays or being unable to get contraceptive or SRH care due to the pandemic (36% vs. 31%) (Lindberg et al., 2020). Particularly vulnerable are underserved youth, immigrants, LGBTQ+, homeless, and those in the foster care and criminal justice systems (Lindberg et al., 2020). Some clinic staff reported declining numbers of patients possibly due to fears of infection, but possibly due to limited public transportation.

In summary, the most under-advantaged women are more likely to suffer the consequences of diminished health care services. While telehealth has filled some of the SRH service gaps, not all women have easy access to this type of service. Given that pharmacies have remained open, promoting clinical services through them by aligned policies for expedient access to self-use SRH products (e.g., condoms, contraceptives pills, patches rings, emergency contraception, standard days method, and potentially self-injection of subcutaneous depot medroxyprogesterone acetate) seems prudent (Church, Gassner & Elliott, 2020).

## Key Points for Research, Practice and Policy

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Our commentary regarding the consequences of the COVID-19 pandemic for women's health points to the need for greater clarity of sex/gender differences in viral infection susceptibility, manifestations, disease trajectory, treatment responses and short/long-term recovery as a springboard for better health care delivery plus relevant health policy that supports optimal health care services. Research support is available from public and private funders. Examples can be found at <https://grants.nih.gov>; <https://research.sdsu.edu>; and <https://crsreports.congress.gov>.

As evidence emerges, rapid translation into practice and clinical services supported by relevant policy substantiation and reinforcement is crucial. SRH services restoration and preservation with integration of in-person and online access should support family planning, healthy pregnancies, age-related disease screening and treatment and health/wellness promotion delivered as inclusive, sensitive and congruent care for all individuals regardless of racial/ethnic origins, sexual orientation/identity and socioeconomic status. See Table 1 for a summary.

**Table 1. – AAN Policy Priorities & Women’s Sexual/Reproductive Health and Access Challenges amid COVID-19**

Topics	Policy Priority #1 Advance Health Equity and Champion Wellness	Policy Priority #2 Promote Innovation and Sustainability	Policy Priority #3 Reduce Patient, Provider, and System Burden
<p>Sex-Related COVID-19 Severity We recommend inclusion of SABV and the effects of COVID-19 on women across the life course.</p>		<p>Policy Recommendations:</p> <ol style="list-style-type: none"> <li>1. Adherence to NIH SABV Policy Notice: NOT-OD-15-102, Consideration of Sex as a Biological Variable when appropriate</li> <li>2. Incorporate sex as a biological variable into the study design and in cases where it is not, provide rationale; collect and analyze disaggregated sex-based data; and report and publish sex-based data</li> <li>3. When appropriate, ensure ≥ 50% of clinical trial participants are females</li> <li>4. Use male and female animals when conducting pre-clinical research</li> <li>5. Peer-reviewed journals and professional societies/ associations to implement SABV Policy, requiring disaggregated data reporting</li> <li>6. Research is needed in support of:               <ol style="list-style-type: none"> <li>a. Uncovering sex differences in multiple mechanisms of viral biological defense and infectious consequences</li> <li>b. Individuals with a strong desire to live as another sex or are undecided about being male or female</li> </ol> </li> </ol>	
<p>Socioeconomic Stressors We recommend policies which directly support the downstream effects of COVID-19 on women’s unemployment, employment, and childcare benefits and resources given that women overwhelmingly serve as primary care givers and constitute nearly half of the US workforce</p>			<p>Policy Recommendations:</p> <ol style="list-style-type: none"> <li>1. Encourage government subsidies to replace pay for women who provide child care or serve as informal or formal caregiver during the pandemic</li> <li>2. Suspend work requirements for government assistance programs until school and daycare centers fully re-open and for those serving as unpaid caregivers for family members who are COVID-19 infected</li> <li>3. Remove requirement to be actively seeking work to obtain unemployment insurance until school and daycare centers re-open</li> <li>4. Extend unemployment benefits to workers who voluntarily leave employment to provide childcare and caregiving to loved ones</li> <li>5. Extend tenure clocks for junior faculty in response to the COVID-19 pandemic; address gender disparities during the pandemic as more women than men are responsible for childcare that may not allow them to conduct research and scholarship</li> </ol>
<p>Pregnancy and Childbirth We recommend policies requiring data reporting and gathering on the effects of COVID-19 on pregnancy and birth outcomes.</p>	<p>Policy Recommendations:</p> <ol style="list-style-type: none"> <li>1. Provide routine COVID-19 testing in early pregnancy to identify women who are positive and track their signs, symptoms, and birth outcomes</li> </ol>	<p>Policy Recommendations:</p> <ol style="list-style-type: none"> <li>1. Conduct research with physiological variables to determine vertical transmission of the COVID-19 virus, transmission during vaginal delivery, and transmission in breastmilk</li> </ol>	

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Table 1. – (Continued)

Topics	Policy Priority #1 Advance Health Equity and Champion Wellness	Policy Priority #2 Promote Innovation and Sustainability	Policy Priority #3 Reduce Patient, Provider, and System Burden
Access to Sexual and Reproductive Health Services for Women <i>We recommend implementation of policies and procedures that promote women's access to health care services and supplies.</i>	<p>2. Identify comorbidities that may be associated with negative and/or positive outcomes</p> <p>3. Education campaigns addressing benefits of and encourage vaccination</p> <p>Policy Recommendations:</p> <ol style="list-style-type: none"> <li>1. Engage communities, including immigrant communities, for a community-driven approach that ensures the dissemination of appropriate, clear, and consistent public health information</li> <li>2. Educate women to not be afraid to obtain health care or to be vaccinated when available</li> <li>3. Create education programs and widely disseminate them so that women can self-use contraceptive options</li> <li>4. Create policies that allow medicated abortion screening and education via telehealth</li> </ol>	<p>2. Include pregnant women in COVID vaccination clinical trials to determine safety and efficacy</p> <p>Policy Recommendations:</p> <ol style="list-style-type: none"> <li>1. In human study designs, besides race and ethnicity, expand the incorporation of sexual orientation, gender identity (SOGI) data, and where appropriate sexual partner behavior assessment to make for inclusive analysis, reporting, and publishing of SGM sub-group data</li> <li>2. Induce more research related to SGM women's health that interweaves sex and gender biopsychosocial, cultural, and multilevel environmental variables</li> <li>3. Require data gathering and reporting systems to include SOGI data</li> </ol>	<p>Policy Recommendations:</p> <ol style="list-style-type: none"> <li>1. Increase federal Title X family planning program funding to anticipate increased demands due to loss of wages, delayed health screening, and increased need for services during the pandemic, including those of immigrants and other under-resourced groups</li> <li>2. Illuminate and educate policy makers to decrease SRH clinic closures and/or health worker diversion away from SRH services, leaving existing health and social services meant to support women in place</li> <li>3. Create programs that provide alternate access options such as telehealth</li> <li>4. Continue to support inclusion of SRH coverage, birth control methods provision and counseling under the Affordable Care Act and other public and private health care insurance plans</li> <li>5. Promote inclusion of abortion care as essential services, particularly due to time limitations</li> <li>6. Encourage local lawmakers to support continuing public transportation and fight policies that mandate closure</li> </ol> <p>Policy Recommendations:</p> <ol style="list-style-type: none"> <li>1. Set national accreditation standards across health care provider professions for SGM social stigma training to advance culturally sensitive health care delivery of services</li> <li>2. Strengthen national and state laws against discrimination by health care and social service providers on the basis of SOGI factors</li> <li>3. Incentivize the development of health and social services, especially online, that are inclusive of SGM women or specialized to be congruent with the needs of SGM women</li> <li>4. Incentivize linkages between community organizations serving SGM women and other sub-groups and health care agencies for public health education and with integrated disaster preparedness plans to prevent erosion of health-related supports during pandemics.</li> </ol>
Sexual and Gender Variation Groups <i>In particular for sex and gender variation (SGV) groups, we recommend the following policy-related actions to protect and promote health.</i>	<p>Policy Recommendations:</p> <ol style="list-style-type: none"> <li>1. Sexual and gender variation (SGV) groups: <ol style="list-style-type: none"> <li>a. Those with pre-existing chronic diseases and high stress-related activation fare more poorly in the face of COVID-19 which makes SGV individuals disproportionately worthy of considerations for inclusive health policies</li> <li>b. Health care delivery reform toward culturally congruent and inclusive care for SGV groups is indicated</li> </ol> </li> </ol>	<p>Policy Recommendations:</p> <ol style="list-style-type: none"> <li>1. In human study designs, besides race and ethnicity, expand the incorporation of sexual orientation, gender identity (SOGI) data, and where appropriate sexual partner behavior assessment to make for inclusive analysis, reporting, and publishing of SGM sub-group data</li> <li>2. Induce more research related to SGM women's health that interweaves sex and gender biopsychosocial, cultural, and multilevel environmental variables</li> <li>3. Require data gathering and reporting systems to include SOGI data</li> </ol>	<p>Policy Recommendations:</p> <ol style="list-style-type: none"> <li>1. Set national accreditation standards across health care provider professions for SGM social stigma training to advance culturally sensitive health care delivery of services</li> <li>2. Strengthen national and state laws against discrimination by health care and social service providers on the basis of SOGI factors</li> <li>3. Incentivize the development of health and social services, especially online, that are inclusive of SGM women or specialized to be congruent with the needs of SGM women</li> <li>4. Incentivize linkages between community organizations serving SGM women and other sub-groups and health care agencies for public health education and with integrated disaster preparedness plans to prevent erosion of health-related supports during pandemics.</li> </ol>

## Authors Contribution

Judith A. Berg: Conceptualization, Writing - original draft, Writing - review & editing. Joan Shaver: Conceptualization, Writing - original draft, Writing - review & editing. Nancy Fugate Woods: Conceptualization, Writing - original draft, Writing - review & editing. Elizabeth A. Kostas-Polston: Conceptualization, Writing - original draft, Writing - review & editing.

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