

## Contraception and VTE risk in the context of COVID-19 illness

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Reviewed and supported by the SOGC's Infectious Disease Committee

Date: October 1, 2021

**Women who are positive for COVID-19 infection can continue any form of contraception that has already been initiated, including combined hormonal contraceptives, regardless of illness severity.**

### *Asymptomatic and mild illness not requiring hospitalization*

There is currently no available evidence associating asymptomatic and mild COVID-19 illnesses not requiring hospitalization with an increased venous thromboembolism (VTE) risk.<sup>1,2</sup> In this context, any form of contraception, including estrogen-containing combined hormonal contraceptives, can be continued without modification.

### *Moderate to severe illness requiring hospitalization*

Moderate and severe COVID-19 illnesses requiring hospitalization are associated with an increased VTE risk, up to 17% incidence of any VTE and 7.1% incidence of pulmonary embolism (PE).<sup>3</sup> Study populations were often older, mostly male and had risk factors for VTE, limiting generalizability to healthy, reproductive age women. Current recommendations are to prophylactically anti-coagulate everyone hospitalized with a COVID-19 illness.<sup>4</sup>

Non-hormonal contraceptives (copper intrauterine device) and progesterone-only methods of contraception (POP, LNG-IUS, DMPA and progestin implants) are not associated with an increased risk of VTE<sup>5</sup> and require no modification to their ongoing use in women with moderate to severe COVID-19 illness requiring hospitalization.

Combined oral contraceptives (COCs) are associated with a 2- to 3- fold increase in VTE compared to non-users, with the highest risk in the first year of use.<sup>6</sup> Baseline risk of VTE in reproductive age women not using COCs is 4-5/10,000-woman years, compared to 10/10,000 woman years in COC users. This is in comparison to the relative risk of 6.7 of VTE in pregnancy and 115.1 in the postpartum period.<sup>6</sup> Contextualizing this risk against the risk of a pregnancy complicated by COVID-19 illness is crucial. In pregnant women with a COVID-19 illness, current data show a 7-10% rate of ICU admission, 3.4% rate of mechanical ventilation and 1% maternal mortality rate.<sup>7</sup> The rate of VTE in pregnant women with COVID-19 is not established yet, with only a handful of case reports so far.<sup>8,9,10,11</sup> Given the elevated risk of VTE associated with pregnancy and postpartum compared to CHC use, as well as the risks of pregnancy complicated by COVID-19 illness, continued use of CHCs (pill, patch or ring) in women with moderate to severe COVID-19 illness requiring hospitalization represents a balanced harm reduction approach.

**Women who are positive for COVID-19 illness with asymptomatic or mild illness can initiate any form of contraception, including combined hormonal contraceptives. Women who are positive for COVID-19 illness with moderate or severe illness requiring hospitalization can initiate non-hormonal or progesterone-only methods of contraception, with a transition to combined hormonal contraceptives (pill, patch, ring) at time of discharge, if desired.**

*Asymptomatic and mild illness not requiring hospitalization*

There is currently no available evidence associating asymptomatic and mild COVID-19 illnesses not requiring hospitalization with an increased venous thromboembolism (VTE) risk.<sup>1, 2</sup> In this context, initiating any form of contraception, including estrogen-containing combined hormonal contraceptives, is safe. The usual Medical Eligibility Criteria for each method apply. As outlined earlier in this guideline, women initiating combined hormonal contraceptives (pill, patch, ring) who are otherwise at low risk of cardiovascular disease, can initiate without a blood pressure assessment. A blood pressure should be assessed as soon as it is clinically feasible.

*Moderate to severe illness requiring hospitalization*

Non-hormonal contraceptives (copper intrauterine device) and progesterone-only methods of contraception (POP, LNG-IUS, DMPA and progestin implants) are not associated with an increased risk of VTE<sup>5</sup> and can be initiated in women with moderate to severe COVID-19 illness requiring hospitalization.

As outlined above, COC use is associated with a 2- to 3- fold increase in VTE risk from baseline, with the highest risk within the first year of use. While women with COVID-19 who have already initiated this as their chosen form of contraception may continue instead of stopping and re-starting CHCs, women who are choosing to initiate contraception at the time of moderate to severe COVID-19 illness requiring hospitalization should consider non-hormonal or progesterone-only methods first.

The risk of VTE associated with moderate to severe COVID-19 illness requiring hospitalization returns to baseline at discharge from hospital.<sup>12</sup> Current recommendations are to halt prophylactic anti-coagulation at the time of discharge.<sup>4, 13</sup> Given this return to baseline VTE risk, women desiring to initiate combined hormonal contraception or transition from another method can do so safely at this time.

**Women who are positive for COVID-19 infection can use any form of emergency contraception, regardless of illness severity.**

There are no absolute contraindications to the use of emergency contraception aside from pregnancy and hypersensitivity.<sup>14</sup> Even women with contraindications to the use of CHCs can safely use hormonal EC methods.<sup>14</sup> Women with any severity of COVID-19 illness can safely use any of the currently available methods for emergency contraception in Canada.

## References

1. American Society of Hematology. Covid-19 and vte/anticoagulation: Frequently asked questions. 2021. Available at <https://www.hematology.org/covid-19/covid-19-and-vte-anticoagulation>.
2. Sciurba FC. Covid-19 positive outpatient thrombosis prevention in adults aged 40-80 (clinicaltrials.gov identifier: Nct04498273). 2021. Available at <https://clinicaltrials.gov/ct2/show/NCT04498273>.
3. Jiménez D, García-Sánchez A, Rali P, et al. Incidence of vte and bleeding among hospitalized patients with coronavirus disease 2019: A systematic review and meta-analysis. *Chest*. 2021;159:1182-96.
4. Cuker A, Tseng EK, Nieuwlaat R, et al. American society of hematology 2021 guidelines on the use of anticoagulation for thromboprophylaxis in patients with covid-19. *Blood Adv*. 2021;5:872-88.
5. Black A, Guilbert E, Costescu D, et al. Canadian contraception consensus (part 3 of 4): Chapter 8 - progestin-only contraception. *J Obstet Gynaecol Can*. 2016;38:279-300. Available at <https://www.ncbi.nlm.nih.gov/pubmed/27106200>.
6. Black A, Guilbert E, Costescu D, et al. No. 329-canadian contraception consensus part 4 of 4 chapter 9: Combined hormonal contraception. *J Obstet Gynaecol Can*. 2017;39:229-68 e5. Available at <https://www.ncbi.nlm.nih.gov/pubmed/28413042>.
7. Kadir RA, Kobayashi T, Iba T, et al. Covid-19 coagulopathy in pregnancy: Critical review, preliminary recommendations, and isth registry-communication from the isth ssc for women's health. *J Thromb Haemost*. 2020;18:3086-98.
8. Khalil A, Kalafat E, Benlioglu C, et al. Sars-cov-2 infection in pregnancy: A systematic review and meta-analysis of clinical features and pregnancy outcomes. *EClinicalMedicine*. 2020;25:100446.
9. Martinelli I, Ferrazzi E, Ciavarella A, et al. Pulmonary embolism in a young pregnant woman with covid-19. *Thromb Res*. 2020;191:36-7.
10. Ahmed I, Azhar A, Eltaweel N, et al. First covid-19 maternal mortality in the uk associated with thrombotic complications. *Br J Haematol*. 2020;190:e37-e8.
11. Mohammadi S, Abouzaripour M, Hesam Shariati N, et al. Ovarian vein thrombosis after coronavirus disease (covid-19) infection in a pregnant woman: Case report. *J Thromb Thrombolysis*. 2020;50:604-7.
12. Roberts LN, Whyte MB, Georgiou L, et al. Postdischarge venous thromboembolism following hospital admission with covid-19. *Blood*. 2020;136:1347-50.
13. National Institutes of Health. Covid-19 treatment guidelines panel. Coronavirus disease 2019 (covid-19) treatment guidelines. 2021. Available at <https://www.covid19treatmentguidelines.nih.gov/>.
14. Black A, Guilbert E, Co A, et al. Canadian contraception consensus (part 1 of 4): Chapter 3 emergency contraception. *J Obstet Gynaecol Can*. 2015;37:S20-S8. Available at [https://doi.org/10.1016/S1701-2163\(16\)39372-0](https://doi.org/10.1016/S1701-2163(16)39372-0).