

# Journal Pre-proof

SARS-CoV-2 in pregnancy: symptomatic pregnant women are only the tip of the iceberg

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37 **KEYWORDS:** SARS-CoV-2, COVID-19, coronavirus, asymptomatic, pregnancy

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40 **Objectives:** Pregnant women present a unique challenge during this COVID-19 pandemic  
41 as they have multiple encounters with healthcare workers (HCW) and most are admitted to  
42 hospital for birth. Universal screening of this population, therefore, has several potential  
43 benefits: reducing the risk of asymptomatic transmission to HCW and other pregnant  
44 women; early patient isolation and use of appropriate personal protective equipment; and  
45 improving understanding of perinatal transmission.<sup>1,2</sup> The prevalence of SARS-CoV-2 in  
46 pregnant women admitted for delivery in one New York hospital between March 22 and April  
47 4, 2020 was 33/215 (15.4%) and 29/33 (88%) were asymptomatic.<sup>3</sup> Such a high proportion  
48 of asymptomatic infection was unexpected and raises questions about infection control  
49 practices in hospitals that do not routinely screen for SARS-CoV-2 in women presenting for  
50 birth. It is also not known whether this rate is generalizable to other pregnant populations.

51 **Study Design:** In London, UK, pregnant women admitted to the Portland Hospital for  
52 Women and Children have been universally screened for SARS-CoV-2 using RT-PCR  
53 (nasopharyngeal swab) since March 27, 2020. The Portland Hospital provides maternity  
54 care to ~1300 women/year. During the COVID-19 pandemic, the hospital supported National  
55 Health Service maternity units by planned cesarean deliveries. Women who had a positive  
56 result and their newborns received care as per hospital protocol for COVID-19.

57 **Results:** As of April 20, 2020, 129 women were tested on admission; 9 (7.0%) tested  
58 positive and 8/9 (88.9%) were asymptomatic. One symptomatic woman with fever and cough  
59 was isolated from admission and subsequently tested positive. The median age of the  
60 women was 34 years and proportion of SARS-CoV-2 positive asymptomatic pregnant  
61 women aged >34 years was 7.0% (4/57) compared to 5.6% (4/67) ≤34 years ( $p=0.75$ )  
62 (Figure). The proportion of SARS-CoV-2 asymptomatic women was 6.3% (5/79) in  
63 Caucasian, 20% (2/10) in Asian, 3.4% (1/29) in women of mixed/other ethnic origins and  
64 none of 10 Afro-Caribbean women. We assessed quintiles of deprivation based on  
65 postcode; 1/26 (3.8%) in quintile group 5 (most deprived) tested positive, compared to none  
66 in quintile group 1 (least deprived) ( $n=17$ ) ( $P>0.05$ ). None of the asymptomatic SARS-CoV-2  
67 positive women had co-morbidities. Only one woman had asthma and was tested negative  
68 for SARS-CoV-2. None of the positive asymptomatic women developed COVID-19  
69 symptoms or adverse perinatal outcomes (median length of stay, 2 days). All babies were  
70 well at birth and at discharge.

71 **Conclusions:** In London, during the peak of the COVID-19 pandemic, 7.0% of pregnant  
72 women attending hospital for delivery were positive for SARS-CoV-2 and 8 of the 9 positive

73 women were asymptomatic. The prevalence of SARS-CoV-2 infection was half that reported  
74 in New York: possible explanations include lower community transmission in London which  
75 did not experience the same intensity of the pandemic as New York, and differences in case  
76 mix of women attending the two hospitals, including ethnicity mix, which has been identified  
77 as a significant factor associated with risk, severity and outcomes of COVID-19.<sup>4</sup>  
78 Remarkably, though, the proportion of SARS-CoV-2 positivity women who were  
79 asymptomatic was similar between the two cohorts.<sup>3</sup> Whilst it is reassuring that all the  
80 asymptomatic women and their babies remained well, the high proportion of asymptomatic  
81 SARS-CoV-2 positive women raises important questions about infection control and  
82 nosocomial transmission since severe disease and fatal outcomes have been reported  
83 among both HCW and some pregnant women.<sup>5</sup> Our findings add to the growing body of  
84 evidence showing high rates of asymptomatic infection in healthcare settings and highlight a  
85 critical need for universal screening of pregnant women.

#### 86 REFERENCES:

- 87 1. Bai Y, Yao L, Wei T, et al. Presumed asymptomatic carrier transmission of COVID-  
88 19. *JAMA*. 2020 Feb 21. doi: 10.1001/jama.2020.2565. [Epub ahead of print]
  - 89 2. Rothe C, Schunk M, Sothmann P, et al. Transmission of 2019-nCoV infection from  
90 an asymptomatic contact in Germany. *N Engl J Med*. 2020;382(10):970–971.
  - 91 3. Sutton D, Fuchs K, D'Alton M, Goffman D. Universal Screening for SARS-CoV-2 in  
92 Women Admitted for Delivery. [Epub ahead of print] .*N Engl J Med*. 2020 Apr 13. doi:  
93 10.1056/NEJMc2009316. [Epub ahead of print]
  - 94 4. Khunti K, Singh AK, Pareek M, Hanif W. Is ethnicity linked to incidence or outcomes  
95 of covid-19? *BMJ*. 2020;369:m1548.
  - 96 5. Karami P, Naghavi M, Feyzi A, et al. Mortality of a pregnant patient diagnosed with  
97 COVID-19: A case report with clinical, radiological, and histopathological findings.
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**Symptom Status and SARS-CoV-2 Test Results**

