

Screening for COVID-19 at childbirth: does it deliver?

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Belgium has been hit hard by COVID-19, with a proportionally high number of deaths (Table 1, Figure 1).¹ Although research regarding COVID-19 is booming, data on the prevalence and severity of Severe Acute Respiratory Syndrome-Corona Virus-2 (SARS-CoV-2) infection during pregnancy and at delivery remains limited. Recent work from affiliated hospitals from Columbia University, New York,

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demonstrates that the pandemic can strike hard in densely populated areas. Testing started initially based on symptoms, with a first report on 29 women with COVID-19-symptoms on admission and 14 women who became diagnosed during their stay.² When using the classification by Wu et al, 37 out of 43 patients had mild symptoms (86.0%), four had severe symptoms (9.3%) and two patients were admitted to the ICU (4.7%).³ In parallel, they started a universal screening program, with 29 out of 210 *asymptomatic* women (13.7%) testing positive on admission for labour and delivery.⁴

In order to contain horizontal transmission between patients and health care workers, an increasing number of hospitals started universal screening on patients being admitted. We reviewed the medical records of all consecutive women admitted for delivery at four obstetrical units in North-East Flanders, Belgium, since local introduction of universal screening with PCR on March 30th, 2020. By May 8th, 473 women delivered, of whom 470 (99.4%) were screened (Figure 2). Thirteen tested positive (2.8%). Eight patients were asymptomatic (61.5%), while four had mild upper airway symptoms (30.8%). No patients developed severe disease, hence there were no ICU-admissions, nor deaths. No patients developed symptoms during hospitalisation. One patient tested positive with respiratory symptoms >2 weeks prior to delivery, but had no residual symptoms by the time of delivery (7.7%).

Therefore, in our experience, *less than 1 in 35 woman* admitted for delivery tested positive for SARS-CoV-2 in a country that is in an advanced form of lockdown since March 18th, 2020. Only one in three had mild symptoms. We think our findings are representative for the population, as Belgium's public health institute "Sciensano" estimates that 4.3% of the population is seropositive, based on 1327 blood samples from healthy blood donors assessed between March 30th and April 16th.⁵ This suggests that in areas with a less dense population (383 inhabitants/km²) than metropolitan New York (10,431/km²), less women may have contracted SARS-CoV-2. Furthermore, the implementation and timing of a policy

of far-reaching measures regarding restrictions on social contacts could have influenced transmission rates.

Our findings may guide clinical decision making, use of Personal Protection Equipment and development of evidence-based guidelines. More importantly, they may reassure the vulnerable population of pregnant women and their health care providers. This could help normalise the pregnancy and childbirth experience for >97% of women. Many modifications and downscaling measures in fetal-maternal care have been taken, with spacing antenatal visits, applying telemedicine and limiting the presence of partners during visits, or even delivery. Without questioning the severity of the pandemic, we need to reflect on how pregnant women have perceived not receiving optimal antenatal care, in addition to their concerns about COVID-19.

CONFLICT OF INTEREST

We declare no competing interests

REFERENCES

1. Sciensano. Covid-19: Epidemiological situation. https://epidemio.wiv-isp.be/ID/Pages/2019-nCoV_epidemiological_situation.aspx [Accessed 08/05/2020].
2. Breslin N, Baptiste C, Gyamfi-Bannerman C, Miller R, Martinez R, Bernstein K, Ring L, Landau R, Purisch S, Friedman AM, Fuchs K, Sutton D, Andrikopoulou M, Rupley D, Sheen JJ, Aubey J, Zork N, Moroz L, Mourad M, Wapner R, Simpson LL, D'Alton ME, Goffman D. COVID-19 infection among asymptomatic and symptomatic pregnant women: Two weeks of confirmed presentations to an affiliated pair of New York City hospitals. *Am J Obstet Gynecol MFM* 2020. DOI: 10.1016/j.ajogmf.2020.100118. 100118.
3. Wu Z, McGoogan JM. Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China. *JAMA* 2020; **323**: 1239.
4. Sutton D, Fuchs K, D'Alton M, Goffman D. Universal Screening for SARS-CoV-2 in Women Admitted for Delivery. *New England Journal of Medicine* 2020. DOI: 10.1056/nejmc2009316.
5. Sciensano. 4,3 procent van de Belgische bevolking heeft antistoffen tegen het coronavirus. <https://www.sciensano.be/nl/pershoek/43-procent-van-de-belgische-bevolking-heeft-antistoffen-tegen-het-coronavirus> [Accessed 08/05/2020].

FIGURES AND TABLES

Figure 1: Incidence of COVID-19 in Flanders

Figure 2: Pie chart with overview of COVID-19 status and disease severity in 470 screened patients when admitted for delivery

Table 1: COVID-19 in Belgium.

	Population ¹ (density/km ²)	Deaths by 8/5/2020 ²	ICU beds ³	Minimum capacity ICU for COVID-19 patients used (%) during crisis ⁴	Maximum capacity ICU for COVID-19 patients used (%) during crisis ⁴
Belgium	11,580,785	8415 4002 (hospital) 4413 (elsewhere) ²	1,864	54.8%	68.9%

Table 1: COVID-19 in Belgium. Legend 1: Source: worldmeters.info; 2: Source: Sciensano. In Belgium also suspected yet unconfirmed COVID-19 cases outside the hospital are included. Only 8% of those are confirmed. 3: The capacity of ICU uniquely for COVID-19 patients is 1864 beds, which can still be pushed up by hospitals on federal request. 4: Source: Belgian Scientific Institute of Public Health, WIV-ISP. Between March 30th and April 25th 2020, the minimum capacity used was 328 patients on respirator, 32 on extra-corporeal membrane oxygenation and 142 others (total: 502). The maximum capacity used was 994 patients on respirator, 46 on extra-corporeal membrane oxygenation and 245 others (total: 1285).

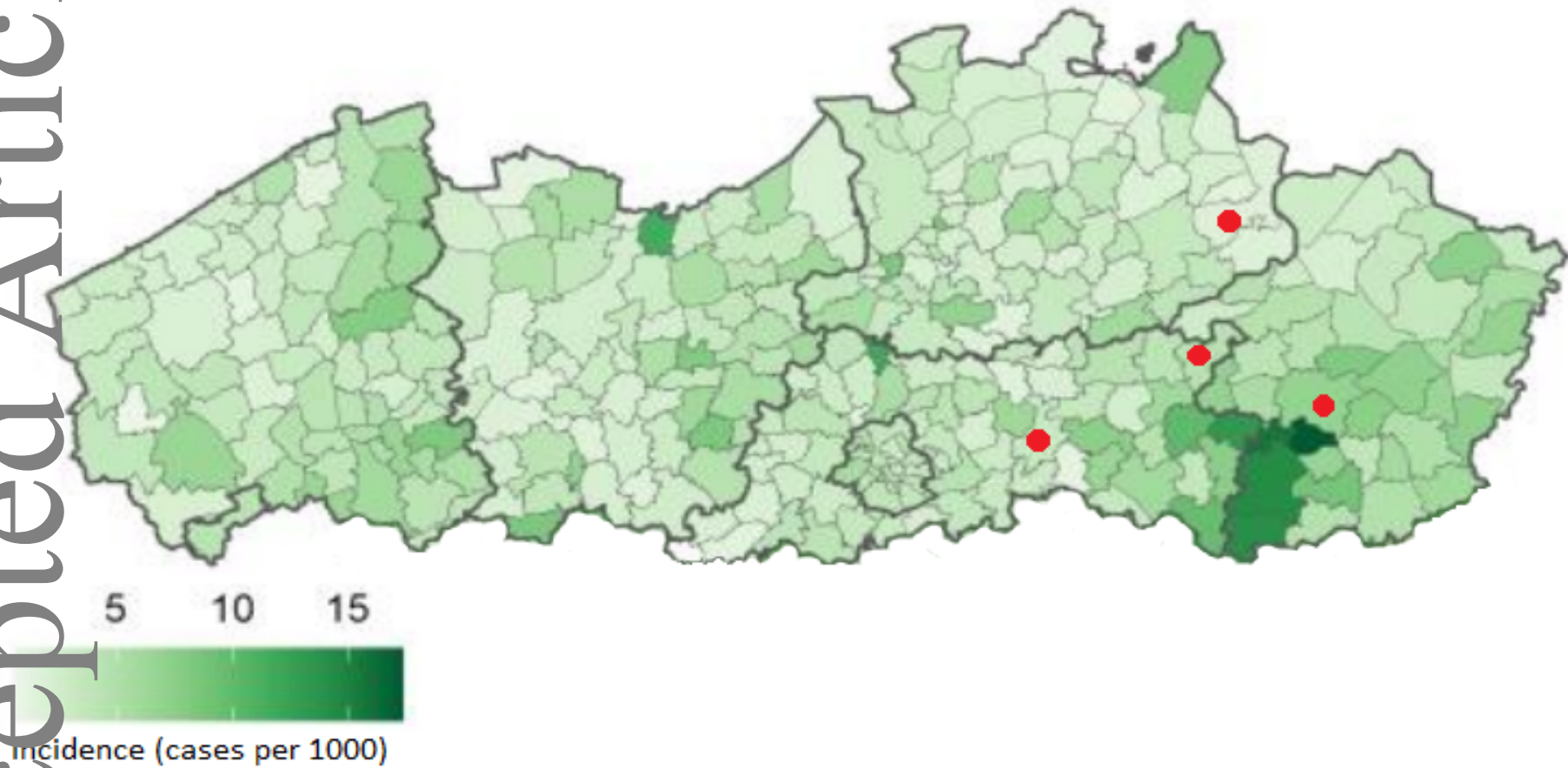


Figure 1: Incidence of COVID-19 in the regions of Flanders and Brussels (cases per 1000). Source: [Sciensano](#). The location of the four hospitals that provided data for this analyses is indicated in red.

COVID-19 status and disease severity in 470 patients admitted for delivery

