

## COVID-19 and the Impacts on Maternal Mortality in the State of Pará-Brazil: Brazilian Amazon

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. Authors JRARM, BSGM, ATMC and RSRS developed the research, methodological design and discussion of the results. Author DMS guided, supervised and approved the final version for publication. All authors read and approved the final manuscript.*

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**Short Communication**

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### **ABSTRACT**

The maternal mortality rate is an indicator that analyses the quality of care provided to women from prenatal care to delivery and puerperium. The aim is to make a brief communication based on the Epidemiological Bulletin of Maternal Mortality of Pará dated 08/06/2020, describing the rate of maternal mortality in general and by COVID19, to show the impact of the pandemic in pregnant women and puerperal in the state of Pará. It was concluded in this study that the causes of maternal deaths by other obstetric diseases (indirect causes) represented (44), being (20) by

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COVID-19 in Pará, presenting a worrying number in this category. These occurred mostly in the puerperium in the 30 to 39 age group. However, it was evident that the situation in Brazil was serious, and represents the majority of cases in the world, showing the impacts of the pandemic on pregnant women and puerperal was intense.

*Keywords: COVID-19; maternal death; pandemic; Brazil.*

## 1. INTRODUCTION

The maternal mortality rate is an indicator used by the Pan American Health Organization (PAHO) that aims to analyze the quality of care, social inequality, and mortality from various causes, among them avoidable, from the surveillance of deaths occurring in pregnancy, childbirth, and puerperium up to 42 days. In this sense, in developing countries, the maternal mortality rate in 2015 was 239 per 100 thousand live births versus 12 per 100 thousand live births in developed countries. Thus, a target was set, from 2016 to 2030, as part of the Sustainable Development Goals (SDGs), to reduce the global rate to less than 70 per 100,000 live births [1].

The main causes are directly associated with prenatal care and conditions with few assistance resources at the time of delivery, especially those that could be avoided. Among the most prevalent etiologies are Hypertension (pre-eclampsia and eclampsia); severe bleeding (especially after delivery); Infections (usually after delivery); Complications in delivery; Unsafe abortions. In Brazil in 2017 the rate was 58.7/100,000, however, in the northern region, the mortality rate was 76.7/100,000, being higher than the goal set by PAHO [2].

In this perspective, in December 2019 in Wuhan, China, there was an outbreak of pneumonia cases with the evolution of deaths, of unknown etiology, of rapid transmissibility. In January they carry out the isolation of the infectious agent causing the Coronavirus family, similar to SARS-CoV, so it was named SARS-CoV-2, and the disease called COVID-19 [3]. The clinical manifestations have mostly been shown to be in the form of influenza syndrome (IS), fever, cough, sore throat, myalgia. However, others evolved to Severe Acute Respiratory Syndrome (SARS), characterized in association with symptoms of IS and oxygen saturation equal to or less than <95%, dyspnea, diarrhea, systemic complications. SARS represents the severity of COVID-19, requiring intensive care, and causing several deaths. The literature points out groups

of risks: the elderly, carriers of chronic diseases, obese, pregnant women were only considered on April 11, 2020, as risk groups. In March 2020 the World Health Organization (WHO) declared the SARS-CoV-2 pandemic [4].

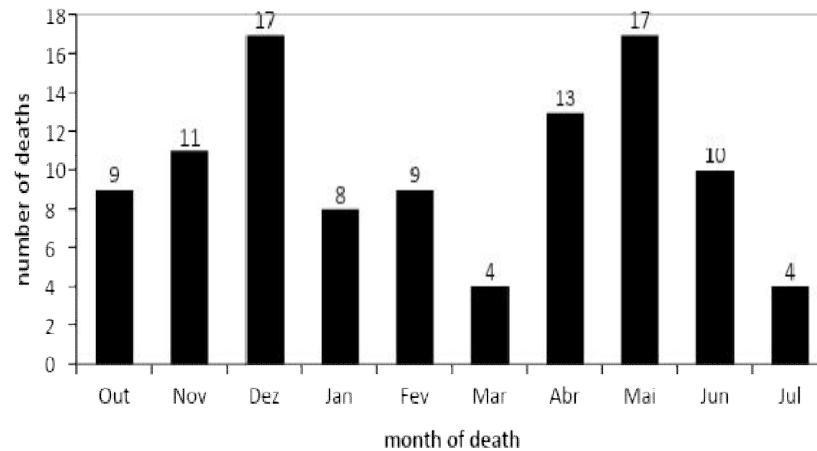
Because of this brief communication, based on the Epidemiological Bulletin of Maternal Mortality of Pará dated 08/06/2020, aims to describe the rate of maternal mortality in general and by COVID-19 in particular, to show the impact of the pandemic on pregnant women and puerperal in the state of Pará.

## 2. RESULTS

The bulletin presented data, referring to the deaths that occurred from October 2019 to August 6, 2020. In Fig. 1, it represents the number of deaths per month of occurrence (104). The highest occurrence in December 2019 (17) and May 2020 (17) stands out.

According to the DATASUS platform, in 2019, there were 138,147 live births, so for 104 maternal deaths, the rate is 75.28 for every 100,000 live births. The distribution by health region: Araguaia (8), Baixo Amazonas (16), Carajás (13), Lago do Tucuruí (6), Metropolitana I (20), Metropolitana II (3), Metropolitana III (7), Rio Caetés (7), Tapajós (4), Tocantins (5), Xingu (7), Marajó I (3), Marajó II (5). The most affected age group was from 30 to 39 with (43) cases. The moment of death most occurred in the puerperium (42) cases. About the causes, the SIM performs a grouping to simplify the interpretation: Pregnancy ending in abortion (4), Hypertensive diseases (21), Pregnancy-related disorders (3), Assistance to the mother related to the fetus, the amniotic cavity, and childbirth (6), Complications of Childbirth (21), Complications of the puerperium (6), Other non-obstetric diseases (indirect causes) (43).

COVID-19 is included in the other obstetric diseases (indirect causes), representing 20 deaths, all of which occurred as of April 2020. See the distribution in Table 1.



**Fig. 1. Maternal deaths from all causes per month of occurrence, October 2019 to August 6, 2020. PA, Brazil**

Source: Maternal Mortality Epidemiological Bulletin, Mortality Information System (SIM), 2020

**Table 1. Distribution of maternal deaths by COVID-19 compared to deaths by all maternal causes, by the municipality of residence, PA, Brazil, 2020**

Maternal Causes by COVID-19	Death number COVID-19	Maternal death no./2020	%
Ananindeua	5	8	62,50
Belém	2	9	22,22
Paragominas	1	1	100,00
São Miguel do Guamá	1	2	50,00
Barcarena	1	1	100,00
Tailândia	1	1	100,00
São Sebastiao da Boa Vista	1	1	100,00
Bagre	1	1	100,00
Santarém	2	8	25,00
Altamira	2	4	50,00
Medicilândia	1	1	100,00
Marabá	1	4	25,00
Parauapebas	1	3	33,33
<b>Total</b>	<b>20</b>	<b>44</b>	<b>45,45</b>

Source: Maternal Mortality Epidemiological Bulletin, Mortality Information System (SIM), 2020

It shows the highest concentration of cases in Ananindeua and Belém municipalities in the metropolitan region. About the moment of death, the majority was ignored or blank (10), the puerperium (6), Pregnancy (2), and Childbirth (2). About the age group, (14) deaths were between 30 and 39 years. It is also noted that the main cause of maternal deaths in Pará to date 06/08/2020 was by COVID-19.

A meta-analysis was conducted with studies from China, with a sample of 108 pregnant women, and presented only 2 maternal deaths occurred in the puerperium with a history of associated

comorbidities, diabetes, and hypertension [5], showing the lower incidence in developed countries. However, in comparison with other states of Brazil, such as Amazonas, which on 08/10/2020 presented 224 cases and 13 deaths in pregnancy (lethality 5.3%), most in the age group 20 to 29 years, 80 cases and 10 deaths in the puerperium (lethality 12.5%), most in the age group 30 to 39 years [6]. Being similar to the results of the state of Pará.

An international study warned as a tragedy by COVID-19 the associated maternal deaths in Brazil with the lethality of 12.7%, which

represented 124 cases out of a total of 160 (70%) occurred in the world, showing the seriousness that Brazil faces concerning the impacts of the pandemic on the maternal mortality rate. The study also shows that 22% of the cases did not have access to the Intensive Care Unit (ICU) and that 36% did not get intubated, also highlighting the risk of maternal death twice as high in black women [7].

In this perspective, the Brazilian Association of Obstetricians and Obstetric Nurses (ABENFO), the Brazilian Association of Nursing (ABEN) and the Federal Council of Nursing (COFEN), nursing entities that act in the technical-scientific, ethical-political and health work domains, representing more than 2,300,000 nursing professionals in Brazil, comes to the public to express concern about the maternal deaths caused by COVID-19. Thus published, "Technical note points measures to contain maternal deaths associated with covid-19. That involves the constitution of a Parliamentary Commission of Inquiry (PCI) to ascertain the current situation of the Maternal Mortality in Brazil; The requirement to sustain detailed information from the investigation and analysis of the deaths of women of fertile age and maternal deaths and especially the SARS and COVID-19 deaths; The maintenance of the health care network organized in its several levels, by the essential services; The attention to pregnancy, childbirth, postpartum, breastfeeding and reproductive planning, with the right to access, integrality and humanization of care; The prioritization of the line of care for women in the gravitic-puerperal cycle; The obligation of obstetric and obstetric nurses adequate in all maternity wards to assist in the humanized childbirth care and the early detection of symptoms of COVID-19 for appropriate and early notification and treatment [8].

### 3. CONCLUSION

It was concluded in this study that the causes of maternal deaths by other obstetric diseases (indirect causes) represented (44), being (20) by COVID-19 in Pará, presenting a worrying number in this category. Of these occurred mostly in the puerperium, in the 30 to 39 age group. However, it was evident that the situation in Brazil is serious, and represents the majority of cases in the world, showing the impacts of the pandemic on pregnant women and puerperal is intense. Related to social and racial inequality and the

quality of assistance provided, associated with the fragilities that the country finds itself. Thus, this study becomes an alert for the national and international panorama, and it is expected that strategies will be drawn for the minimization of maternal deaths.

### CONSENT

It is not applicable.

### ETHICAL APPROVAL

It is not applicable.

### COMPETING INTERESTS

Authors have declared that no competing interests exist.

### REFERENCES

1. OPAS OP-A de SB. OPAS/OMS Brasil - Folha informativa - Mortalidade materna. PahoOrg; 2018. Available:[https://www.paho.org/bra/index.php?option=com\\_content&view=article&id=5741:folha-informativa-mortalidade-materna&Itemid=820](https://www.paho.org/bra/index.php?option=com_content&view=article&id=5741:folha-informativa-mortalidade-materna&Itemid=820) (Accessed August 14, 2020)
2. Rodrigues ARM, Cavalcante AES, Viana AB. Mortalidade materna no Brasil entre 2006-2017: Análise temporal. RETEP. 2019;11:3–9.
3. Lima LNGC, De Sousa MS, Lima KVB. As descobertas genômicas do SARS-CoV-2 e suas implicações na pandemia de COVID-19. J Heal Biol Sci. 2020;8:1. Available:<https://doi.org/10.12662/2317-3076jhbs.v8i1.3232.p1-9.2020>.
4. Pereira MD, Pereira MD, Costa CFT, Santos CKA dos, Dantas EHM. Aspectos epidemiológicos, clínicos e terapêuticos da COVID-19. J Heal Biol Sci. 2020;8:1. Available:<https://doi.org/10.12662/2317-3076jhbs.v8i1.3297.p1-8.2020>.
5. Zaigham M, Andersson O. Maternal and perinatal outcomes with COVID-19: A systematic review of 108 pregnancies. Acta Obstet Gynecol Scand. 2020;99: 823–9. Available:<https://doi.org/10.1111/aogs.13867>.
6. Fundação de Vigilância em Saúde do Amazonas (FVS). Monitoramento da COVID-19 EM grávidas e Puérperas no

- Estados do Amazonas. FvsAmGovBr; 2020.  
Available:[http://www.fvs.am.gov.br/indicadorSalaSituacao\\_view/64/2](http://www.fvs.am.gov.br/indicadorSalaSituacao_view/64/2)  
(Accessed August 14, 2020)
7. Takemoto MLS, Menezes M de O, Andreucci CB, Nakamura-Pereira M, Amorim MMR, Katz L, et al. The tragedy of COVID-19 in Brazil: 124 maternal deaths and counting. *Int J Gynaecol Obstet*; 2020. Available:<https://doi.org/10.1002/ijgo.13300>.
8. Conselho Federal de Enfermagem (COFEN). Nota técnica aponta medidas para conter mortes maternas associadas à covid-19 Conselho Federal de Enfermagem - Brasil. CofenGovBr; 2020. Available:[http://www.cofen.gov.br/nota-tecnica-aponta-medidas-para-conter-mortes-maternas-associadas-a-covid-19\\_81618.html](http://www.cofen.gov.br/nota-tecnica-aponta-medidas-para-conter-mortes-maternas-associadas-a-covid-19_81618.html)  
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