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# Dengue Co-infection and COVID-19 in Brazil, 2020: Literature Review

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**Abstract:** The pandemic scenario, accompanied since the end of 2019, consisting of COVID-19 affects countries on all continents. Upon reaching South America, it expressed concerns to researchers about the simultaneous circulation of existing dengue serotypes. This is a national and international literature survey involving dengue co-infection and covid-19 in Brazil. The reference period was from April 2020 to March 2021. The descriptors used were: "Coinfection" AND "simultaneous infection" AND "Sars Cov II" AND "Arbovirus". The survey took place in the PERIODIC CAPES and Google Scholar databases in both databases. It was found that the possibility of co-infection between Dengue and COVID-19 exists, mainly in endemic areas, which may lead to a delay in the diagnosis of COVID-19 infection, producing greater dissemination of the virus and progression to death.

**Keywords:** Arbovirus. Co-infection. Cov Sars II.

## 1. Introduction

The pandemic scenario, accompanied since the end of 2019, consisting of COVID-19, affects countries on all continents. Upon reaching South America, it expressed concerns to researchers about the simultaneous circulation of

existing dengue serotypes (MUHAMMAD ALI,2020).

Regarding the classification of COVID-19, it is described in the literature as an emerging disease caused by the new coronavirus, offering impacts on society, especially in health systems, due to the rapid and contagious infectious cycle (MIRZA RYAN, 2020).

In addition to presenting itself as a disease of easy dissemination, the impacts of this virus have devastating consequences in tropical and subtropical regions. Records show a total of 504,000 deaths nationwide and 4.91 million deaths worldwide today, on May 25, 2021 (MARCOS, 2020).

Brazil has been facing dengue epidemics over the last 35 years. Failures monitored during the development of vector control and combat actions are pointed out as the main responsible for the increase in dengue case records in the territory (NAIRA, 2020).

To this end, we seek to bring to the discussion space some aspects that challenge the implementation and adoption of Public Policies that enable the control and combat of these two public health problems, seeking to understand and analyze these studies from works that can contribute to face the challenges that the entire community of professionals and employees of the single health system in the country faces.

The choice of the theme proposed a differentiated look at dengue co-infection and covid-19 in Brazil, because this area of activity is extremely important for concrete diagnoses, considering that this technology is also present in the follow-up of patients hospitalized by Covid-19. This literature review aimed to present co-infection of dengue and covid-19 in Brazil.

## 2. Methodology

This is a bibliographic review study, that is, a survey of theoretical reference from scientific publications, which is national ly and internationally involving dengue co-infection and covid-19 in Brazil.

The data collection occurred through the Coordination for the Improvement of Higher Education Personnel (CAPES) and Google Academic. The reference period was from April 2020 to March 2021.

The descriptors used were: "Coinfection" AND "simultaneous infection" AND "Sars Cov II" AND "Arbovirus". Inclusion criteria: works in English and Portuguese, published in the last five years, which deal with related topics involving dengue co-infection and covid-19 in Brazil. These, available for free online. Exclusion criteria include: works whose text is not available in full, duplicated, review, meta tonalysis, and also works that, after reading, were not related to the research objective.

Being selected 08 works being included, according to the eligibility criteria according to Figure 1.

In relation to the data appreciation, this study was conducted qualitatively, prioritizing the analysis of micro processes, understanding, interpreting and dialing these findings, inter-relating them through the established criteria.

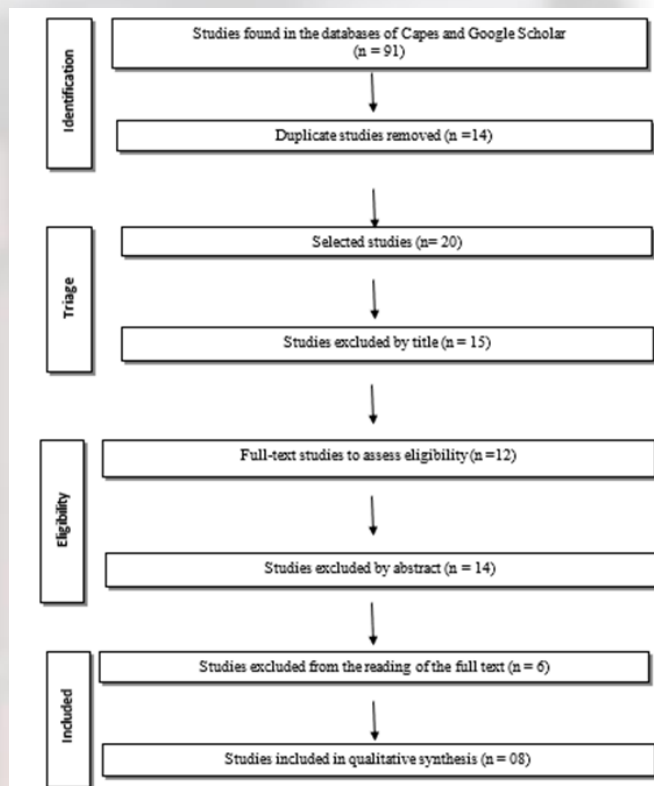


Figure 1. Flowchart of selection criteria and inclusion of studies.

## 3. Results and Discussion

Regarding the results found, a total of 91 works analyzed, however, only 08 works were included in the research, respecting the inclusion criteria.

Table 1. Demonstration of the works that make up the Integrative Review

No.	Date	Title	Authors	Periodic	Goals	Findings
	2020	COVID - 19 and Co dengue epidemic: a double problem for overloaded health systems in developing countries	Misbahud Din; Madiha Asghar; Muhammad Ali	Journal of Medical Virology	To highlight the cases about the disease of the new coronavirus us (SARS-CoV-2) and Dengue.	It has been noted that about 100 to 400 million infections per year are reported due to dengue worldwide with 25,000,000 deaths annually.
	2020	Coinfection,	Miah	Journal	Co-	It was

		CO EPIDEMIC COVID - 19, and dengue in dengue - endemic countries: a serious health problem	Asaduzzama n; Asmaul Husna	Of Medical Virology	infection and co- epidemic of COVID- 19 and Dengue in Endemic Countries are presented.	<b>found that Dengue in endemic countries has a history of occurren ce of repeated outbreak s of dengue, that during COVID- 19 the crisis of the situation would be very difficult to manage if the dengue epidemic worsened in these countries.</b>			López Medina; Pio López; Juan Carlos Navarro; Luis Perez Garcia; Euler Mogollon Rodriguez; Alfonso J. Rodriguez Morales; Alberto Paniz Mondolfi.			median of 75,250 cases per year.	
	2020							2020	Covid-19 and dengue: double blows to dengue endemic countries in Asia	Mirza Ryan; Benedict Yohan; Rufika Shari Abidin; Firzan Nainu; Ahmed Rakid; Israt Jahan; Talha Bin Emran; Irfan Ullah; Panta kritu; Dhama Kuldeep; R. Tedjo Sasmono.	Journal Of Medical Virology	Call the double blows in endemic countries of Dengue and COVID- 19 in Asia.	It was found that Dengue is an important public health problem in all tropical and subtropica l regions, which also causes this disease by any of the four serotypes of Dengue virus, which is transmitte d by <i>mosquitoe s mainly Aedes aegypti</i> .
	2020	Dengue and COVID - 19, overlapping epidemics? An analysis of Colombia	Jaime A. Cardona Ospina; Kovy Arteaga Livias; Wilmer E. Villamil Gómez; Carlos E. Pérez Díaz; D. Katterine Bonilla Aldana; Alvaro Mondragon Cardona; Marco Solarte Portilla; Ernesto Martinez; Jose Millan Oñate; Eduardo	Journal Of Medical Virology	Follow an analysis of Dengue and COVID- 19 in Colombia .	It was observed that in the last 5 years (2015- 2019) and in the first 5 months of 2020 had a total of 452,980 dengue cases were reported in Colombia, ranging from 26,279 (2017) to 127,553 (2019), with a							
								2020	Co-infection between Dengue and COVID-19: Need to approach endemic areas.	Marcos Saavedra Velasco; Christian Chiara Chilet; Rafael Pichardo Rodriguez; Antonio Grandez	Revista de la Facultad de Ciencias Médicas de Córdora.	Observe the impact of coronavir us disease 2019 around the world, and also the distributi	It was observed that there is the possibility of co- infection between Dengue and COVID-

			Urbina; Fiorella Inga Berrospi		on of endemic diseases such as Dengue.	19, which in endemic areas may lead to a delay in the diagnosis of COVID- 19 infection, producing greater spread of the virus and progressio n to death.	2020	Co-infection of SARS-CoV-2 and dengue virus: a clinical challenge	<a href="#">Naira Bicuado</a> , <a href="#">Eliana Bicuado</a> , Julia <a href="#">Duarte Costa</a> , <a href="#">Julliana Alline</a> _ <a href="#">Leite Porto Castro</a> , <a href="#">Gustavo Barcelos Barra</a>	National Library Of Medicine	It was observed thatin these regions of the world where dengue epidemics are seasonal also face the COVID- 19 pandemic . This is a medical concern because both diseases are difficult to distinguis h, since they present clinical symptom s and similar laborator y findings, and because they have different clinical managem ent.	It was observed that there are patients who presented favorable clinical improvm ent, without severe symptoms . This case emphasize s that, in the pandemic era, being diagnosed with an infection does not exclude the possibility of having another infection concomita ntly.
	2020	Diagnosis of COVID-19 in an endemic area of dengue	<a href="#">Dewi Lokida</a> ____, <a href="#">Nurhayati Lukman</a> , <a href="#">Gustiani Salim</a> , <a href="#">Deni Pepy Butar-butar</a> , Herman <a href="#">Kosasih</a> , <a href="#">Wahyu Nawang</a> _ <a href="#">Wulan Adhella</a> _ <a href="#">Menur Naysilla</a> , <a href="#">Yuanita Djajady</a> , <a href="#">Rizki Amalia</a> _ <a href="#">Sari Ms.</a> _ <a href="#">Arlinda Chuen-Yen Lau</a> and Muhammad <a href="#">Karyana</a>	The American Journal Of Tropical Medicine And Hygiene	Note, The appearanc e of SARS- CoV-2 in endemic areas of dengue virus (DENV) complicat es the diagnosis of both infections . Cases of COVID- 19 may be misdiagn osed as dengue, especially when it comes to DENV IgM, which may remain positive months after infection.	It was found that covid-19 cases were defined as inpatients who met the COVID- 19 criteria based on a predeterm ined combinati on of symptoms , laboratory tests, imaging and risk exposure at tangerang district hospital, Indonesia						
							2020	Impact of SARS- CoV-2 INTERVENTI ONS ON dengue transmission	Jue Lim Tao; Borame Sue Lee Dickens; Lawrence Zheng Xiong Chew; Esther Li Wen Choo; Joel Koo Joel Aik; Lee Ching Ng; Alex R. Cook.	Plos Neglected Tropical Diseases	It was observed that an estimated 105 million dengue infections occur each year in 120 countries, where traditiona	It was found that pandemia resulted in dramatic reductions in human mobility due to measures of social distancing ; the effects on



					I vector control is the main control strategy to reduce contact between vector mosquito es and people.	vector-borne diseases are not known. Here, we examine the pre- and post-mosquito counts difference of dengue cases in Malaysia, Singapore and Thailand, and estimate the effects of social distancing as a treatment effect as we adjust to time confusion factors.
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To this end, in the following sections we have the main points that the authors consulted discuss about dengue co-infection and covid-19 in Brazil.

In relation to dengue behavior in endemic countries, this pathology has a history of repeated outbreaks, this is one of the main determinants that directly imply the current crisis experienced with the arrival of the pandemic (ASADUZZAMAN *et.al.*, 2020). According to Mirza *et. al.*, (2019) Dengue is an important public health problem in all tropical and subtropical regions, transmitted by mosquitoes mainly *Aedes aegypti*.

The possibility of co-infection between Dengue and COVID-19 exists, mainly in endemic areas, which may lead to a delay in the diagnosis of COVID-19 infection, producing greater spread of the virus and progression to death (MARCOS *et. al.*, 2020).

## 5. Conclusion

It was found that the possibility of co-infection between Dengue and COVID-19 exists, mainly in endemic areas, which may lead to a delay in the diagnosis of COVID-19 infection, producing greater dissemination of the virus and progression to death.

## References

- [1] Misbahud Din; Madiha Asghar; Muhammad Ali. COVID - 19 e coepidemia da dengue: um problema duplo para sistemas de saúde sobrecarregados em países em desenvolvimento. Journal Of Medical Virology 2020.
- [2] Mirza Ryan; Benedict Yohan; Rufika Shari Abidin; Firzan Nainu; Ahmed Rakid; Israt Jahan; Talha Bin Emran; Irfan Ullah; kritu Panta; Kuldeep Dhama; R. Tedjo Sasmono. Covid-19 e dengue: golpes duplos para países endêmicos de dengue na Ásia. Journal Of Medical Virology 2020.
- [3] Marcos Saavedra Velasco; Christian Chiara Chilet; Rafael Pichardo Rodriguez; Antonio Grandez Urbina; Fiorella Inga Berrospi. Coinfecção entre Dengue e COVID-19: Necessidade de Abordagem em áreas endêmicas. Revista de la Facultad de Ciencias Médicas de Córdoba, 31 Mar 2020, 77(1):52-54 Language: spa DOI: 10.31053/1853. 0605.v77.n1.28031 PMID: 32238260/ 2020.
- [4] Naira Bicudo, Eliana Bicudo, Julia Duarte Costa, Julliana Alline Leite Porto Castro, Gustavo Barcelos Barra. Coinfecção de SARS-CoV-2 e vírus da dengue: um desafio clínico. National Library Of Medicine. 2020
- [5] Asaduzzaman Miah; Asmaul Husna. Coinfecção, Co epidemia de COVID - 19, e dengue na dengue - países endêmicos: um sério problema de saúde. Journal Of Medical Virology. 2020
- [6] Jaime A. Cardona Ospina; Kovy Arteaga Livias; Wilmer E. Villamil Gómez; Carlos E. Pérez Díaz; D. Katterine Bonilla Aldana; Álvaro Mondragon Cardona; Marco Solarte Portilla; Ernesto Martínez; Jose Millan Oñate; Eduardo López Medina; Pio López; Juan Carlos Navarro; Luis Perez Garcia; Euler Mogollon Rodriguez; Alfonso J. Rodríguez Morales; Alberto Paniz Mondolfi. Dengue e COVID - 19, epidemias sobrepostas? Uma análise da Colômbia. Journal Of Medical Virology 2020.
- [7] Dewi Lokida , Nurhayati Lukman , Gustiani Salim , Deni Pepy Butar-butur , Herman Kosasih , Wahyu Nawang Wulan , Adhella Menur Naysilla , Yuanita Djajady , Rizki Amalia Sari , Dona Arlinda , Chuen-Yen Lau e Muhammad Karyana. Diagnóstico de COVID-19 em área endêmica de dengue. The American Journal Of Tropical Medicine And Hygiene. 2020.
- [8] Jue Tao Lim; Borame Sue Lee Dickens; Lawrence Zheng Xiong Chew; Esther Li Wen Choo; Joel Ruihan Koo; Joel Aik; Lee Ching Ng; Alex R. Cook. Impacto das intervenções SARS-COV-2 na transmissão da dengue. Plos Neglected Tropical Diseases. 2020.