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Conduct in Brazil in face of the COVID-19 pandemic: integrative review

Conducta en Brazil ante la pandemia COVID-19: revisión integrativa

Conduas no Brasil diante da pandemia de COVID-19: revisão integrativa

ABSTRACT

Objective: To analyze the behaviors defined by the Brazilian authorities regarding the COVID-19 pandemic in Brazil. **Method:** This is an integrative literature review on the behaviors adopted in the face of the COVID-19 pandemic in Brazil. A survey of articles was carried out in the Medline, Lilacs and Pubmed databases, from December 31, 2019 to April 12, 2020, 19 studies were selected. **Results:** One article dealt with non-pharmacological interventions, eight articles addressed measures of Health Surveillance and the Epidemiological aspects of COVID-19 and the other nine articles addressed the measures of prevention, treatment and or control of COVID-19 in Brazil. **Conclusion:** Most of the measures taken by Brazil were based on conduct adopted in other public health emergencies with clinical and epidemiological similarities with the current scenario of the pandemic in Brazil.

DESCRIPTORS: Coronavirus infections; Therapeutic Conduct; Public health.

RESUMEN

Objetivo: Analizar los comportamientos definidos por las autoridades brasileñas con respecto a la pandemia COVID-19 en Brasil. **Método:** Revisión integradora de la literatura sobre los comportamientos adoptados ante la pandemia de COVID-19 en Brasil. Se realizó una encuesta de artículos en las bases de datos Medline, Lilacs y Pubmed, del 31 de diciembre de 2019 al 12 de abril de 2020, se seleccionaron 19 estudios. **Resultados:** Un artículo abordó intervenciones no farmacológicas, ocho artículos abordaron medidas de Vigilancia de la Salud y los aspectos epidemiológicos de COVID-19 y los otros nueve artículos abordaron medidas de prevención, tratamiento y / o control de COVID-19 en Brasil. **Conclusión:** La mayoría de las medidas tomadas por Brasil se basaron en conductas adoptadas en otras emergencias de salud pública con similitudes clínicas y epidemiológicas con el escenario pandémico actual en Brasil.

DESCRIPTORES: Infecciones por coronavirus; Conducta terapéutica; Salud pública.

RESUMO

Objetivo: Analisar as condutas definidas pelas autoridades brasileiras acerca da pandemia da COVID-19 no Brasil. **Método:** Trata-se de uma revisão integrativa de literatura sobre as condutas adotadas frente a pandemia da COVID-19 no Brasil. Foi realizado um levantamento de artigos nas bases de dados Medline, Lilacs e Pubmed, no período de 31 de dezembro de 2019 a 12 de abril de 2020, 19 estudos foram selecionados. **Resultados:** Um artigo tratou sobre as intervenções não farmacológicas, oito artigos abordaram medidas da Vigilância em Saúde e os aspectos Epidemiológicos da COVID-19 e os outros nove artigos abordaram as medidas de prevenção, tratamento e ou controle da COVID-19 no Brasil. **Conclusão:** A maioria das medidas tomadas pelo Brasil foi baseada em condutas adotadas em outras emergências de saúde pública com semelhanças clínicas e epidemiológicas com o atual cenário da pandemia no Brasil.

DESCRIPTORES: Infecções por Coronavírus; Conduas Terapêuticas; Saúde Pública.

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INTRODUCTION

Coronavirus is a family of viruses that has RNA (ribonucleic acid) of simple ribbon, enveloped and with high mutation power, which affects the respiratory system of humans and some animals. Between 2002 and 2003, there was a severe epidemic in China, called SARS - Severe Acute Respiratory Syndrome (Severe Acute Respiratory Syndrome), which had a lethality rate of around 10%. In 2012, another respiratory syndrome was also caused by the Coronavirus and with a lethality rate, around 30%, named MERS - Middle East Respiratory Syndrome (English, Middle East Respiratory Syndrome).^{1,2}

In December 2019, yet another SARS epidemic began in Wuhan, China. Due to the high rate of infection, susceptibility and transmission of the population, mainly through asymptomatic cases, the local epidemic gained strength and ended up spreading to other countries.^{1,3,4} From February 2020, Brazil began to register its first suspicions, having in this same month, its first confirmed occurrence of COVID-19 - from English Coronavirus disease-2019.⁵ The mortality rate of the

new Coronavirus is assumed to change according to each country. In Brazil there were 10.278 people infected and 432 deaths, between the beginning of the pandemic until April 4th, 2020. Among people who have some type of comorbidity, this rate varies around 73%.^{6,7}

The transmission of the disease occurs when a healthy individual has contact with droplets or secretions from another infected person or with contaminated objects. After this occurs, SARS-Cov-2 lodges in the airways, replicates, and can generate specific symptoms such as: runny nose, difficulty breathing, cough, sore throat and fever, which can lead to death in the most severe cases.⁸

The best measures that could be taken to prevent and treat COVID-19 would be vaccination and the use of medications. However, due to the recent manifestation of SARS-Cov-2, there are still no vaccines to carry out the immunization of the world population, nor a treatment using drugs that is totally effective and recommended since the beginning of the disease.^{9,7,4}

In light of the above, of the importance of avoiding contamination and transmission of COVID-19, the present study

aims to analyze the conducts defined by the Brazilian authorities in the face of the COVID-19 pandemic in Brazil, in the period between December 2019 and May 2020, through an integrative literature review.

METHOD

It is an integrative literature review on the conduct taken in the face of the COVID-19 pandemic in Brazil.

In order to conduct the integrative review, the following question was considered: What are the conducts determined by the Brazilian authorities that must be carried out in the health systems, institutions and by the population, in the face of the COVID-19 pandemic in Brazil?

A survey of articles was carried out from December 31st, 2019 to April 12th, 2020 in the following databases: Latin American and Caribbean Literature in Health Sciences (LILACS), Medical Literature Analysis and Retrieval System online line (Medline), both indexed in the Virtual Health Library (VHL) and PubMed. The following descriptors were used to search for scientific articles: "COVID-19" and "Brazil". Using the Boolean

operator AND that provide the intersection between the chosen descriptors.

The inclusion criteria defined for the selection of articles were: all articles published in Portuguese, English and Spanish that addressed the theme “COVID-19” in Brazil. Exclusion criteria: articles that mentioned the theme “COVID-19” in other countries, notes, contingency plans, theses, books, conference or conference proceedings, project documents, in short, all documents that were not of the textual genre and scientific article.

In the first phase of the research, only the term “COVID-19” was used as a descriptor for the broad search of articles in the LILACS and MEDLINE databases, both indexed in the Virtual Health Library. As a result, 350 papers (LILACS) were obtained, and 8786 papers (MEDLINE). After applying the following

filters: database (LILACS or MEDLINE), country / region as subject (Brazil), type of document (Article) and year of publication (2019-2020). The search generated a total of 50 articles, 10 belonging to LILACS and 40 to MEDLINE.

Subsequently, an advanced search was performed on the PubMed Central website. In a first search, the descriptors “COVID-19” and “Brazil” were used, which were interceded by the Boolean AND marker and by the use of the filters “title” and “publication date (31/12/2019 - 12/05/2020)”. After this search, 17 articles were obtained as a result. Right after that, a second search was carried out on PubMed, for this, the same descriptors and the AND intercession between the terms were used, however now the filters “summary” and “publication date (12/31) /2019-12/ 05/2020). This search resulted in 17 scientific articles.

Thus, a total of 84 articles were found referring to the three databases, 10 from the LILACS database, 40 from the MEDLINE database and 34 from the PubMed database.

The second step in choosing which articles would be included in the analysis was the evaluation of the articles included in journals according to the Qualis CAPES classification (Coordination for the Improvement of Higher Education Personnel) 10 and as the Impact factor “impactor factor”, used by international databases. Articles classified between A1 and B2 were included. After this procedure, 69 articles were included.

In the third phase, the repeated articles were filtered. Thus, 19 articles were excluded from the total of 69 articles (1 belonging to LILACS, 5 to PubMed and 13 belonging to MEDLINE). Thus, 50 articles remained.

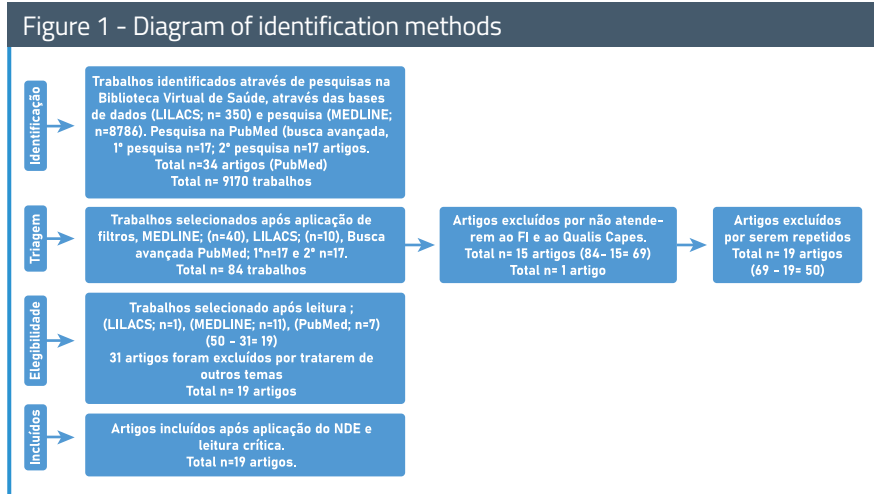
In the fourth and last stage, all remaining works were read. After reading, works were selected that exclusively addressed the topic of conduct in relation to COVID-19 in Brazil and presented in the form of scientific articles. After this stage, documents that did not meet the inclusion criteria mentioned above were disregarded. Thus, 31 studies were excluded from the analysis, 4 (LILACS), 13 (MEDLINE) and 14 (PubMed), leaving 19 articles (Figure 1).

It is noteworthy that in this study a systematic and rigorous strategy was used to search for the most relevant articles according to the proposed theme. However, as a limitation, few national studies published in that period were found.

The final sample consisted of 19 articles. Based on a critical analysis of the selected works, the following information was verified: year, place of publication, objectives, methodology and conduct in relation to COVID-19 in Brazil.

RESULTS

Nineteen national and international studies published in 2020 were analyzed, one found in Lilacs, eleven in the Medli-



Source: Research data, 2020.

Table 1 - Impact factor of the journals that published the articles, adapted from Qualis CAPES, according to the sucupira platform www.capes.gov.br and Level of evidence according to criteria established by the Oxford Center for Evidence

REVISTA	CAPES	ISSN	NÍVEL DE EVIDÊNCIA	FATOR DE IMPACTO	ÁREA DE AVALIAÇÃO
REVISTA BRASILEIRA DE EPIDEMIOLOGIA	B1	1415-790X	IIA	0.0124	ENFERMAGEM
BRAZILIAN JOURNAL OF OTORHINOLARYNGOLOGY	B1	1808-8686	IA	1,603	ENFERMAGEM

CADERNOS DE SAÚDE PÚBLICA	B1	0102-311X	IA/ IIB/IIA	0.2217	ENFERMAGEM
CLINICS	B1	1980-5322	IIB /IIIB	0.0074	ENFERMAGEM
EPIDEMIOLOGIA E SERVIÇOS DE SAÚDE	B2	2237-9622	IA/ IIB/IA	0,1930	ENFERMAGEM
REVISTA DA SOCIEDADE BRASILEIRA DE MEDICINA TROPICAL	B1	0037-8682	IIB	1,498	ENFERMAGEM
REVISTA DE SAÚDE PÚBLICA	A2	1518-8787	IIB	1,968	ENFERMAGEM
THE BRAZILIAN JOURNAL OF INFECTIOUS DISEASES	B1	1413-8670	IA	2.223	ENFERMAGEM
REVISTA DO COLÉGIO BRASILEIRO DE CIRURGIÕES	B1	1809-4546	IA	0.0272	ENFERMAGEM
JOURNAL OF MINIMALLY INVASIVE GYNECOLOGY	B1	1553-4650	IB	2.414	MEDICINA I
TRAVEL MEDICINE AND INFECTIOUS DISEASE	B1	1477-8939	IB/IB/IB	4.868	SAÚDE COLETIVA
REVISTA ENFERMAGEM UERJ	B1	0104-3552	IB	0.36	ENFERMAGEM

Source: Research data, 2020.

ne database, both indexed in the VHL and seven in PubMed (Table 2). For greater understanding, the articles studied were presented in categories, according to the similarity of the subject. Category one contains an article that discusses the arrival of a ship in the Port of Santos with new suspected cases. Category two: has an article that dealt with COVID-19's non-pharmacological interventions. Category three: has eight articles that addressed measures of Health Surveillance and the Epidemiological aspects of COVID-19 in Brazil and category four, has nine other articles that described the prevention, treatment and control measures of COVID-19 in Brazil.

Category one: arrival of a ship in the Port of Santos with new suspected cases

Air and sea transport systems can

significantly affect the spread of disease around the world. Therefore, on February 19, 2020, there was an investigation of a ship of Chinese origin that landed at the Port of Santos, with 25 crew members, in order to investigate the possibility of these crew members being contaminated by COVID-19, since two of them presented evident manifestations of COVID-19.¹¹

During the investigation, it was noticed that these two suspected cases did not fit the clinical picture of COVID-19 because they did not have fever and at least one respiratory symptom. However, the first crew member had a sore throat, which led to the administration of an anti-inflator. He remained in isolation for 14 days while presenting the symptom. The second crew member reported a fever from February 10th, 2020 to February 13th, 2020, denying other persistent symptoms. With that an antipyretic was

administered, leading him to cure. The rest of the crew declared that in the past two months until the date of the investigation, they had not experienced any symptoms related to COVID-19, and it was not necessary to perform the collection of biological material through swab and saline solution.¹¹

Category two: COVID-19 non-pharmacological interventions

One study highlighted the importance of non-pharmacological interventions to reduce the epidemic curve, aiming at reducing the morbidity and mortality of the Brazilian population. However, to date, there is no research in the literature that has demonstrated the significantly superior efficacy of a given immunization for curing patients infected with SARS-Cov-2.¹²

Still within this context, the authors emphasize that it is important to adopt hand hygiene practices, social isolation, quarantine and avoid frequenting places with crowds of people, in order to reduce the rate of contamination and spread of the disease. This research also pointed out that these measures that were taken in the Influenza pandemic are being important for coping with COVID-19, since they observed a certain similarity between the reaction ways of SARS-Cov-2 and the Influenza virus.¹²

The World Health Organization (WHO) has so far not recommended the use of masks for asymptomatic cases, as there is no evidence of a reduction in the transmission of Influenza. Therefore, there is no evidence of the effectiveness of using masks for these asymptomatic cases in order to prevent against COVID-19 infection.¹²

Category three: Health Surveillance measures and the Epidemiological aspects of COVID-19 in Brazil

The conduct determined by the World Health Organization (WHO), Secretary of Health Surveillance of the Ministry of Health (SVS / MS), Federal Government, Interministerial Executive Group

on Public Health Emergency of National and International Importance (GEI-ESPPI), Surveillance in Health, Emergency Committee, Event Monitoring Committee and the Ministry of Health's Emergency Operations Center (COE) for health systems facing SARS-Cov-2 in Brazil, are related to the mobilization of specialists in the field of health, the installation of laboratory structures that offer rapid results and the appropriate use of personal protective equipment for professionals.^{1,13,14,4}

The use of platforms, tools and applications created and/or supported by the Brazilian authorities can expand the scientifically based information for the population. Therefore, the number of suspicious cases, confirmed and discarded, is published on the platform (<http://platform.saude.gov.br/novocoronavirus/>), with the aim of making case notifications faster.^{1,13,4,15}

The monitoring of the epidemic curve was one of the most important actions carried out by the Epidemiological Surveillance. It is of fundamental importance to demonstrate the epidemiological factors of the current COVID-19 pandemic. The exposure of the peaks can contribute to future decisions, in order to distinguish the best time for taking measures.^{7,14,4}

Another Brazilian authority (ANVISA- National Health Surveillance Agency) emphasizes the need for the tests used to diagnose COVID-19 among Brazilians to be registered, so that they are consistently accurate. A meta-analysis that evaluated the accuracy of these tests in clinical use obtained satisfactory results.¹⁶

They observed hospitalizations for severe acute respiratory syndromes (SARS) in periods prior to the beginning of COVID-19 in Brazil, and it was found that if the pattern of hospitalizations had changed. There was a considerable increase in the number of hospitalizations for SARS in 2020, related to the new coronavirus. As for testing for the detection of SARS-Cov-2, tests were included in the SARS surveillance protocol as of the 12th epidemiological week, in order to confirm the hypothesis that COVID-19 is the main cause related to the increase in hospitalizations for severe acute respiratory syndrome.¹⁷

Category four: COVID-19 prevention, treatment and control measures in Brazil

In order to reduce the proliferation of SARS-Cov-2 during the current pandemic, some measures were taken, such as the use of personal protective equipment (PPE), keeping the space ventilated, properly sanitizing the hands, covering the nose and mouth with the inner part of the elbow when coughing or sneezing, avoiding crowded places, keeping individuals with persistent symptoms of COVID-19 in isolation for 14 days, social detachment, quick case finding, adopting quarantine for people notified to the new coronavirus, among others.^{18,19,3,6,9,20,5,2}

For those patients who needed elective appointments, it would be appropriate to reschedule appointments, in order to have a longer time interval between one patient and another. New routines for face-to-face assistance were also recommended. The patient should have a safe distance between the doctor and the

patient. The exchange of gloves by the health professional during each visit was also reinforced. In addition, establishments that produce food and serve healthy people have had their tasks blocked.^{18,19,3,6,9,20,5,2}

With regard to asymptomatic cases, the use of PPE is extremely important among the professionals responsible for these patients, so that there is no possible contamination, which does not imply that the same conduct is made for symptomatic cases. COVID-19 patients, what is suggested is to respect the clinical characteristics of each patient to choose the most appropriate and individualized treatment.^{18,2}

To contain the spread of the virus, it is necessary to invest in research, with the aim of presenting epidemiological data on current events, in addition to creating tests, vaccines and drugs that prevent and treat the disease.²¹ The administration of specific drugs and the immunization of the population would be of great importance to treat and prevent the disease. However, to date, there is still no study on vaccination and forms of treatment that are effective and scientifically proven to contain COVID-19 in Brazil.

DISCUSSION

The results demonstrate the importance of preventive actions against COVID-19 to reduce the number of confirmed cases of the disease. They also emphasized the need to carry out rapid tests, to discriminate between suspected and confirmed cases and to track communicators in order to quarantine them, in order to avoid contamination of

Table 2: List of articles studied, adapted from Souza TS, et al. 22 according to modifications, article title, authors, periodical and thematic considerations.

Base de Dados	Título do artigo	Autor	Periódico (vol., nº, p., 2020)	Considerações temáticas
BVS via Medline	An update on COVID-19 for the otorhinolaryngologist - a Brazilian Association of Otolaryngology and Cervicofacial Surgery (ABORL-CCF) Position Statement.	LAVINSKY, J., et al.	Brazilian Journal of Otorhinolaryngology, v.71, nº 1, 2005.	Apresentam recomendações frente às evidências de COVID-19 para o Otorrinolaringologista.

	The surgeons and the COVID-19 pandemic.	CORREIA, M. I. T. D.; RAMOS, R. F.; BAHTEN, L. C. V.	Revista do Colégio Brasileiro de Cirurgiões, v.36, nº1, 2009.	Discorre sobre a veracidade de trabalhos científicos sobre a COVID-19, além de medidas tomadas por cirurgiões frente à pandemia.
	Food (in) security in Brazil in the context of the SARS-Cov-2 pandemic.	OLIVEIRA, T. C.; ABRANCHES, M. V.; LANA, R. M.	Cadernos de Saúde Pública, v.32, nº1, 2016.	Demonstram medidas tomadas frente à COVID-19 no Brasil de acordo com a necessidade de se obter uma segurança alimentar independente da classe socioeconômica.
	How Brazil can hold back COVID-19.	OLIVEIRA, W. K., et al.	Epidemiologia e Serviços de Saúde, v.25, nº1, 2016.	Apresentam estratégias e ações adotadas pelo Ministério da Saúde do Brasil para deter a COVID-19.
	How should health systems prepare for the evolving COVID-19 pandemic? Reflections from the perspective of a Tertiary Cancer Center.	CHEN, A. T. C., et al.	Clinics, v.60, nº1, 2005.	Sob perspectiva de um Centro Terciário de Câncer do Estado de São Paulo, discute condutas que foram realizadas em outras condições de emergência e durante a pandemia da COVID-19 no Brasil.
BVS via Medline	Management of inflammatory bowel disease patients in the COVID-19 pandemic era: a Brazilian tertiary referral center guidance.	QUEIROZ, N. S. F., et al.	Clinics, v., nº, p., 2020.	Relatam sobre o tratamento de pacientes com doença inflamatória intestinal (DII) durante o tempo da pandemia de COVID-19 que apoiam a reconstituição da unidade de DII e os conselhos clínicos fornecidos aos pacientes.
	What is urgent and necessary to inform policies to deal with the COVID-19 pandemic in Brazil?	BARRETO, M. L., et al.	Revista Brasileira de Epidemiologia, v., nº, p., 2020.	Retrata a urgência e importância de dados confiáveis e de qualidade frente à pandemia de COVID-19 no Brasil, além de evidenciar o desenvolvimento de uma série de ferramentas e plataformas para oferecer as melhores referências sobre o impacto atual e futuro da pandemia no país.
	Intervenções não farmacológicas para o enfrentamento à epidemia da COVID-19 no Brasil.	GARCIA, L. P.; DUARTE, E..	Epidemiologia e Serviços de Saúde, v. 12, nº 3, 2003.	É listadas medidas não farmacológicas individuais, ambientais e comunitárias que são de total importância no enfrentamento da COVID-19 no Brasil na ausência de vacinas.
	COVID-19 and hospitalizations for SARI in Brazil: a comparison up to the 12th epidemiological week of 2020.	BASTOS, L. S., et al.	Cadernos de Saúde Pública, v. 14, nº 1, 1998.	Comparação das hospitalizações de casos de SRAG (Síndrome Respiratória Aguda Grave) e COVID-19 entre períodos diferentes.
	Resposta imediata da Vigilância em Saúde à epidemia da COVID-19.	CRODA, J. H. R.; GARCIA, L. P.	Epidemiologia e Serviços de Saúde, v. 25, nº 1, 2016.	Descrevem medidas que foram tomadas a partir da constatação de rumores do SARS-Cov-2, além do aumento de casos suspeitos, confirmados e descartados na China e no Brasil, conforme a Vigilância em Saúde.

BVS via Medline	Emergência do novo coronavírus (SARS-CoV-2) e o papel de uma vigilância nacional em saúde oportuna e efetiva.	LANA, R. M., et al.	Cadernos de Saúde Pública, v. 14, nº 1, 1998.	Compara a velocidade de reprodução, de letalidade e de avanços na vigilância epidemiológica entre a COVID-19 e outras doenças no Brasil durante períodos de epidemia, além de apresentar situações que são um desafio para uma melhor eficácia no combate à doença.
Lilacs	Epidemiologia, políticas públicas e pandemia de COVID-19 no Brasil: o que esperar no Brasil?	RAFAEL, R. M. R., et al.	Revista Enfermagem Uerj (Universidade do Estado do Rio de Janeiro), v. , nº , p., 2020.	Argumentam experiências e diferenças no controle da pandemia da COVID-19 perante o ponto de vista da epidemiologia e das políticas públicas brasileiras.
	Outbreak investigation in cargo ship in times of COVID-19 crisis, Port of Santos, Brazil.	FERNANDES, E. G., et al.	Revista de Saúde Pública, v. 48, nº , 2014.	Averigua a possibilidade de haver casos confirmados pela COVID-19 entre os tripulantes de um navio que desembarcou no Porto de Santos, em cumprimento ao plano de contingência para infecção humana com o SARS-Cov-2 no estado de São Paulo.
	COVID-19 and dengue fever: A dangerous combination for the health system in Brazil.	LORENZ, C.; AZENVEDO, T. S.; NETO, F. C.	The Journal of Minimally Invasive Gynecology, v. 1, nº 1, 2003.	Retratam medidas preventivas, quais são e sua importância na ausência de vacinas, além de demonstrar a similaridade da COVID-19 e Dengue frente às características clínicas e laboratoriais.
	COVID-19: a meta-analysis of diagnostic test accuracy of commercial assays registered in Brazil.	CASTRO, R., et al.	The Brazilian Journal of INFECTIOUS DISEASES, v. , nº , p. , ano.	Discorre sobre a precisão de testes disponíveis para detecção de COVID-19 no Brasil.
PubMed	COVID-19 in Brazil: advantages of a socialized unified health system and preparation to contain cases.	CRODA, J., et al.	Revista da Sociedade Brasileira de Medicina Tropical, v. 28, nº , 1995.	Detalha a experiência do Brasil em outras emergências de saúde, em erros cometidos durante a tentativa de combate ao vírus e em ações tomadas para o enfrentamento da doença.
	How Brazil Is Dealing with COVID-19 Pandemic Arrival Regarding Elective Gynecological Surgeries.	BRITO, L. G. O., et al.	The Journal of Minimally Invasive Gynecology, v. , nº , p. , 2020.	Retratam que a sociedade obstétrica e ginecológica (Federação Brasileira de Associações de Ginecologia e Obstetrícia) e várias sociedades afiliadas, por exemplo, Associação Brasileira Uroginecologia e Pélvico e Endometriose e Sociedade Minimamente Invasiva estão se preparando para orientar os membros das Associações quanto às precauções e medidas de cirurgias ginecológicas eletivas.
	COVID-19 in Brazil: Historical cases, disease milestones, and estimated outbreak peak.	SERDAN, T. D. A., et al.	Travel Medicine and Infectious Disease, v. 1, nº1, 2003.	Destaca a influência das decisões e medidas tomadas pelo governo de São Paulo no aumento de casos confirmados, dando ênfase no pico da epidemia em um dos estados brasileiros que é considerado o Epicentro do país.

PubMed

COVID-19 in Latin America: The implications of the first confirmed case in Brazil.

MORALES, A. J. R., et al.

Travel Medicine and Infectious Disease, v. 1, nº 1, 2003.

Relata o início de rastreamento e investigação de contatos e casos suspeitos além de demonstrar uma preocupação com a possível falta de preparo dos sistemas de saúde e de equipamentos suficientes para os pacientes.

Source: Research data, 2020.

more people. In addition, they highlight the importance of social isolation to control the number of cases, since asymptomatic individuals also contribute to the transmission of the disease. They also point out that it is essential to use PPE, in order to protect health professionals.

In the face of an epidemic, the monitoring of the number of cases by the surveillance services is carried out to predict the epidemiological scenario, and thus outline the best public policies to face this eventuality. As this is a new virus, the population's susceptibility to being infected is much greater, which implies an increase in the speed of the occurrence of epidemic peaks, a situation that the Brazilian health system is not sufficiently prepared to face. In view of this, vaccination would be the ideal measure to immunize the population and consequently promote the flattening of the epidemic curve, however, as it is not currently a reality, contact restriction interventions have helped to extend the time of occurrence of cases.⁷

After the implementation of social isolation in the country and especially by the government of Rio de Janeiro, there was a significant reduction in the reproduction of the disease, previously, estimated between 2,4 to 4,6 people, falling to 2,1 and 3,8 people, this in one day. The epidemic's doubling time also improved slightly when compared to the two periods: between 2,0 and 2,9 days and 2,9 and 3,3 days, respectively.⁷

The SARS-Cov-2 pandemic has caused and has caused inconvenience to the Brazilian population, due to the circulation of inconsistent information and accesses on unreliable sites.⁴ Because of this, the Ministry of Health (MS) has

taken fundamental steps to restrict false publications. For this, they provided new means of information to help the population, for example: the creation of the Coronavirus SUS application and a specific WhatsApp channel. In addition, platforms and tools have been created in recent months to disseminate reliable information about the current and future consequences caused by COVID-19. The platforms can be accessed through the following links: <http://covid19br.org/main-site-covida/>; <https://bigdata-covid19.icict.fiocruz.br>; <https://sites.google.com/view/nois-pucrio>; <https://COVID-19.procc.fiocruz.br/>; <https://ciis.fmrp.usp.br/covid19/>.¹⁵

Lana et al.¹³ also highlight in their study, the creation of the Integrated Health Surveillance Platform (IVIS Platform) <http://plataforma.saude.gov.br/novocoronavirus/>, which seeks to objectify the visualization of information (confirmed cases, deaths, preventions, recommendations, etc.) of COVID-19. The creation of these applications and platforms is relevant, since it provides society with information with a scientific basis, transmitting confidence and knowledge. Barreto et al.¹⁵, he mentions that in Brazil there is a great difficulty when it comes to choosing the best procedures to be used to fight the pandemic. The Brazilian College of Surgeons agrees that although there is a wealth of information, scientific evidence is weak, and thus suggests qualified initiatives to assist patients and health professionals in the face of the SARS-Cov-2 pandemic.¹⁹

Oliveira, Duarte, França and Garcia⁴, showed that the high transmissibility of the virus due to asymptomatic cases, enables an increase in the incidence of infec-

tion and, consequently, an increase in the number of serious cases that can overcome the capacity of health services. Mizumoto, Kagaya, Xarebski, and Chowell²³ they believe that asymptomatic people can have a significant participation in the spread of the virus, sustain transmissibility, as well as, make it difficult to control the pandemic. A study with crew and passengers of a ship that docked in Yokohama (Japan) found that, after an ex-passenger disembarked in Hong Kong and tested positive for coronavirus, even asymptomatic, other passengers who had contact with him also tested positive. Of the 3711 passengers on the ship, 634 tested positive for SARS-Cov-2, of which 328 did not manifest the disease, which corresponds to more than half of the people infected on the ship.

Due to the high transmissibility of COVID-19, Brazilian health authorities acted quickly in the face of the pandemic's imminent emergency. Even before the first cases appeared in Brazil, some actions were taken. On January 10th, it was declared a National Public Health Emergency (NPHE). On January 22nd, the Ministry of Health activated the Emergency Health Operations Center (EHOC-nCoV) by decree n.188 11, with alert level 1.

The objective of EHOC-nCoV coordinated by the Secretariat of Sanitary Surveillance (HSS) is to advise state and municipal health secretaries, the federal government, public and private health services, agencies and companies, on contingency plans and health strategies, response according to the risk of each region. On January 26, the first suspected case of coronavirus in Brazil was found, which led to an increase in the level

of alert to level 2 (imminent risk). Also noteworthy are the actions regarding the first case in the country, such as: identification, contact tracking at home, in the hospital and on the flight on which the infected patient traveled.⁵

On January 26, the first suspected case of coronavirus in Brazil was found, which led to an increase in the level of alert to level 2 (imminent risk). Also noteworthy are the actions regarding the first case in the country, such as: identification, contact tracking at home, in the hospital and on the flight on which the infected patient traveled.¹ In addition, Oliveira, Duarte, France, and Garcia⁴ they also point out the concern of the Brazilian authorities focused on the production, acquisition and distribution of PPE to all health professionals. There was an expansion of the service structures, the creation of the "Brasil Conta Comigo" program, which aims to train health professionals, support the increase in production and purchase of mechanical ventilators, expand the number of tests to diagnose the disease and make available about R\$ 1 billion to states and municipalities to finance actions against COVID-19.

Croda, Garcia¹, highlights in its study the importance of the use of PPE for health professionals, since unprotected there is a greater facility for the spread of the virus in health services. The literature also emphasizes that health systems should reinforce hospitals campaigns and allocate more professionals in the search for prevention in the face of the pandemic.^{29,30}

There is also other evidence of Brazilian conduct, such as: anticipation of the Influenza vaccination campaign for people with comorbidities and health professionals; the establishment of "home work" for public workers; closing of libraries, museums, religious temples, zoos, parks, restaurants, bars and nightclubs.¹⁴ In addition, Croda et al.⁹ mentions measures such as: use of chloroquine and hydroxychloroquine in critically ill patients as a complementary measure, social isolation and quarantine.

Wang J, Wang^{z 24} reveals that some measures taken by the Brazilian authorities were similar to those developed in China, such as: the development of an emergency health system that enables performance in guidance, prevention and control in the fight against the pandemic, strengthening of health services, investments in research, postponement of the beginning of the school semester, provision of general information about the epidemic and enriching content for the population through television and radio.

It highlights, the traffic control, increased supervision of the trades in mainly those of birds and wild animals, application of funds for the purposes of prevention and control of the virus. It also shows a great discrepancy between the demand and supply of materials (masks and protective clothing) to prevent the virus, which could lead to a lack of them. For this reason, China increased the production of protective materials by about 40% and paid attention to the control of trades and uses of these materials in establishments so that the necessary demand could be met.²⁴

Bastos et al.¹⁷, Lorenz, Azevedo, Neto²¹, and Morales et al.⁵ bring the concern of the impact that COVID-19 could have in Brazil, for already facing other infectious diseases like Influenza (H1N1), Dengue, Zika and Chikungunya among others. They reinforce that the probability of outbreaks occurring simultaneously is evident, since in late April and early May it would be the maximum peak of COVID-19, according to estimates by statisticians and epidemiologists in Brazil, a fact that would coincide with the increase in cases of respiratory diseases. This would further burden health services, which might not have intensive care units (ICUs) for all patients. This context justified the advancement of the vaccination campaign against H1N1, which also contributed to the identification of possible cases among health professionals.

In Brazil, there are currently about 16 diagnostic tests available and registered

with the National Supplementary Health Agency (ANVISA). They are divided into two types: real-time polymerase chain reaction (PCR) and rapid (serological) tests. However, distribution and availability are controlled by the authorities. Most of the tests performed are serological, which focus on the detection of IgM (immunoglobulin M) and / or IgG (immunoglobulin G) antibodies.¹⁶

The diagnostic accuracy of the tests available in Brazil is satisfactory. However, it is noteworthy that the rate of false negative results of tests that detect IgM antibodies that characterizes the antibodies of the acute phase in the infection, obtained a range of 10 to 44%, which can be considered high. For this reason, it is ideal that the tests be performed after 3-6 days after the onset of symptoms, in order to diagnose IgM antibodies, and after 8 days to identify IgG, which would decrease the rate of false negatives.¹⁶

A false negative result prevents the determination of essential precautions such as the isolation of this individual, which would contribute to the spread of the virus. In order to reduce the pandemic of COVID-19, it is necessary to offer tests on a large scale, so that there is a quick diagnosis, and consequently the immediate isolation of positive cases and close contacts as a means of prevention.¹⁶ However, even with the expansion of tests in Brazil, the demand for cases that require diagnostic testing is exceeding the amount of tests available.⁷

In view of this situation, the Ministry of Health (MS) directed the prioritization of tests for patients in severe conditions hospitalized in intensive care. The remaining cases should be instructed to adopt home isolation, without the need for notification to health authorities.²⁵ However, when observing this guidance from the MOH, it is noticeable that there would be a possible under-notification of less severe cases of the disease, and as seen by the experience of other countries, most of those affected by COVID-19 present the disease in the most soft.⁷

With the advance of the pandemic

caused by SARS-CoV-2 in Brazil, various services, institutions and companies have undergone changes in their daily activities. Some conducts were implemented by the eclectic health authorities, supermarkets, consulting rooms and other essential businesses, so that they could continue to function during the pandemic, since they remained closed during the initial phase of this outbreak.³

Oliveira, Abranches, Lana³ addressed in their study, conducts for establishments that produce or distribute food. In the same study, he points out that on March 16th, the State Secretariat of Agriculture, Livestock, Fisheries and Supply of the State of Rio de Janeiro instituted, through Ordinance PRESI/CEASA-RJ no 17, the Extraordinary Contamination Prevention Program, that among the measures imposed is: avoiding personal contact between employees (having preference for the use of technologies for communication), eating meals at the workstation itself, restricting the presence of employees to presence at headquarters and notification when there are cases suspects. In addition, measures such as spacing of 3 meters between tables and reducing the capacity of stores to 30%, were instituted in the Federal District and Rio de Janeiro, respectively.

Services such as take out / away, delivery and pick-up at the store, are being recommended to businesses, as it minimizes the risk of crowding. The Brazilian Supermarket Association has established a booklet disseminating strategies to minimize the risk of contagion, in which it highlights; the need to clean with alcohol 70% of surfaces and objects where customers and employees frequently touch, shopping carts, shopping baskets, door handles, handrails, payment terminals, food, food packaging, ATMs and elevators. It also recommends that dispensers with alcohol gel at the entrance of the store and soap and paper towels in the bathrooms should be made available to the public, in addition to restricting the number of customers inside the store.³

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In Brazil, due to the arrival of COVID-19, it was necessary to reschedule several elective procedures. The American Association of Gynecological Laparoscopists, as well as, several societies reinforce the need to reschedule elective surgeries, but emphasizes the discussion of this action between the surgeon and the patient.

VID-19, it was necessary to reschedule several elective procedures. The American Association of Gynecological Laparoscopists, as well as, several societies reinforce the need to reschedule elective surgeries, but emphasizes the discussion of this action between the surgeon and the patient.²⁰

Queiroz et al.², Lavinsky et al.¹⁸, Cor-

reia, Ramos, Bahten¹⁹, Chen et al.⁶ reinforce the same adoption regarding the postponement of elective surgeries. They suggest that for patients who need surgery immediately, or cannot be rescheduled, that patients undergo diagnostic tests for COVID-19 before the procedures are performed, and that, in addition, use of individual protection by the entire team, as well as a limited number of people within the operating room.

Correia, Ramos, Bahten¹⁹ mention other measures for surgeons, such as: defining specific rooms for operations; strict care with the use of aspiration and cauterization devices; insufflation in laparoscopic or open operations due to the production of aerosols; use of the cautery with the lowest power; disinfection of the room and all materials used in accordance with the recommendations of health authorities and limiting the number of visits, especially to patients in the ICU.

Still when it comes to assistance, TeleSUS is a way of artificially tracking suspected cases of COVID-19 by telephone calls. Telemedicine has been a great ally for patients and doctors, as it is of fundamental importance to assist people who need medical care, whether they are affected by COVID-19 or not. This method of care becomes interesting in this period because there is no need for face-to-face contact with patients, which thus reduces the possibility of any transmission. The Federal Council of Medicine contributed to Telemedicine being organized, and produced some regulations for online medical consultations, including telesurgery and telediagnosis, among others.⁴

Lavinsky et al.¹⁸, report that as of March 19th, 2020, a note was released from the Brazilian Medical Association recommending the suspension of outpatient care for otolaryngologists, being strengthened by the Federal Council of Medicine. Through this implementation, medical consultations would be largely online.

For those patients who need outpa-

tient care, measures should be taken such as: symptomatic patients should be instructed to wear surgical masks and wait in an individual room, always keep the rooms (reception and office) well ventilated, use of mask by all employees. During the consultation, regardless of the procedure, the use of PPE for both the patient and the professional is essential.²⁶

Currently, it is recommended that all people use masks if they need to leave home, due to research showing that the use of fabric masks is effective, since they guarantee a physical barrier for the droplets produced by the individual for the environment. In cases of asymptomatic people in home isolation, they must wear a mask in their homes, since there is a great risk of contamination by other inhabitants in the same house.²⁶

Non-pharmacological measures contributed to the non-spread of the virus among the population.⁹ Garcia, Duarte¹² show that non-pharmacological interventions (INF) are intended to try to reduce the curve and the epidemic level regarding the outbreak of COVID-19 in Brazil, in addition to restricting person-to-person transmission and decreasing mortality. These measures are of environmental scope (cleaning of the environment, objects, door handles, vehicles, etc.), individual (mask, glove, hand hygiene, respiratory etiquette and social distance) and community (actions carried out aiming at restricting schools, universities, public and local transport with crowds of people, among others).

Currently, INF may be the best strategy for mitigating the virus until a vaccine against the disease is developed, however the stoppage of all non-essential activities must be carefully evaluated as it would affect the country's economy. increased spread of the disease which would cause much greater damage.¹² That's why Garcia, Duarte¹² and Cimermam, Chebado, Cunha, Morales²⁷ agree that this decision should be evaluated with caution, because the sooner this action is implemented, the less the disease will spread.

Garcia, Duarte¹², still highlight the

The implementation of contingency plans is important to prevent the dispersion of COVID-19, since the stage presents the main actions that must be taken by organizations and the population.¹¹ Measures like these make a total difference in the course of an epidemic, even preventing it from becoming a pandemic.

difficulty in implementing these INF for people with vulnerabilities, such as homeless people, institutionalized elderly people and others, since these groups would have great difficulty to follow these interventions, since, often, in the environments in which they live, there is no adequate ventilation, water channels,

enough space, among others.

In view of the outbreak of pneumonia of unknown origin in Hubei Province (Wuhan-China), Pan et al.²⁸, shows that more than 40 thousand people were infected in just one month, worrying health authorities, the government and the population. However, twenty-five days after that, Hubei established the strictest traffic restrictions in the area where the disease originated, in an attempt to inhibit the spread of the virus. It was observed that this measure established by Hubei Province in the face of the epidemic, caused a decrease in the rate of appearance of new cases in Hubei Province in 10 days when compared to other locations in China, which indicates early on the effectiveness of this action.

It is worth mentioning some actions defined by the Chinese government, such as: social isolation, construction of countless hospitals, convocation of over 10.000 doctors to work in Hubei Province, provision of daily information on the epidemic to the population, financial assistance to businessmen and employees and research investment. These actions were essential, because otherwise, the transmission rate would be even higher and would occur in a short period of time and the number of confirmed cases for COVID-19 would be higher than currently observed as well as the number of deaths.²⁸

The implementation of contingency plans is important to prevent the dispersion of COVID-19, since the stage presents the main actions that must be taken by organizations and the population.¹¹ Measures like these make a total difference in the course of an epidemic, even preventing it from becoming a pandemic.

Fernandes, Santos, Sato¹¹ showed some safety measures taken on a cargo ship in the Port of Santos (BRAZIL), following the recommendations of the contingency plan. Interviews were conducted guided by a semi-structured questionnaire, social isolation of the crew until the investigation of the cases, use of PPE by the professionals, preparation

for emergency situations (ambulance on duty prepared for locomotion of the crew if necessary), investigation and notification.

The little ventilation existing inside the spaces of the vessels, facilitates the transmission of the virus from person to person, in addition to the introduction of the virus in different areas after passengers disembark.¹¹ It should be noted that contingency plans are documents produced from accumulated evidence from other countries, especially China, in addition to being based on WHO information and scientific evidence, which greatly helps Brazil to deal with the COVID-19 pandemic.⁹

We are still experiencing the COVID-19 pandemic in Brazil, as well as other countries. But according to the trajectory of other countries, it is believed that the preventive measures adopted in Brazil will bring several benefits. On 4/28, 5.017 deaths from coronavirus were recorded in Brazil, which exceeded the number of fatal cases in China, which according to WHO, registered 4.643 deaths on the same date. The number of cases due to COVID-19 in Brazil continues to expand, and currently 411.821 confirmed cases have been recorded, 25.598 deaths, lethality of 6,2%. Most of the notifications are centralized in São Paulo, with 89.483 cases and 6.712 deaths, and later, Rio de Janeiro with 42.398 cases and 4.605 deaths. The Ministry of Health affirms that each region must be treated differently according to local needs and reports that it is reinforcing the acquisition of respirators, PPE and professionals to act on the front line.³¹

According to Hung et al.³², It is extremely important to use specific highly active antivirals to treat this new infectious disease caused by the SARS-COV-2 virus. However, the development of a new antiviral could take years to be approved for clinical use. However, the redirection of existing broad-spectrum antiviral drugs that have already been used to treat other viral diseases, can be a considered approach, a conduct that is being consi-

dered by several research centers today.

In Brazil, the Ministry of Health implemented on March 27 the use of chloroquine and hydroxychloroquine in critically ill patients as a complementary measure, since in several studies the use of this medication has shown positive results, as it promotes a decrease in viral load in patients.⁹ The study by Hung et al.³², demonstrated that early treatment with the triple combination of, interferon beta-1b, lopinavir - ritonavir and ribavirin is safe and very effective. In addition, treatment with this triple antiviral therapy made the viral load in the samples negative within 8 days after the start of treatment.

Although there are some gastrointestinal and self-limiting adverse events from diarrhea and vomiting, treatment with interferon beta-1b, lopinavir - ritonavir and ribavirin has been shown to be very effective. The only limitation is that liver enzymes may increase during the use of medications, returning to normal after discontinuing use. It is also worth mentioning that using this triple combination, patients spent a short time in the hospital environment, which would be a solution for health systems, since many of them are prepared for an epidemic peak.³²

Quarantine, social detachment and reduction of agglomerations, took effect during the influenza pandemic in 1918 and 1919, in some cities in the United States 1. On February 3, 2020, with the Declaration of Public Health Emergency of National Importance (ESPIN), the Ministry of Health approved law No. 13,979 16 which bears the name: (Quarantine Law), and which establishes conducts aimed at protection of the community and assist the National Health Service (PHE) in coping with COVID-19, adopting: isolation, quarantine, mandatory notification, epidemiological study or investigation, exhumation, necropsy, cremation and handling of corpses, exceptional and temporary restriction on entering and leaving the country; request for goods and services from

natural and legal persons, ensuring the consecutive payment equivalent to the citizen's right.⁹

In view of the current pandemic caused by SARS-VOC-2, quarantine, social detachment and isolation have proved to be very effective in Brazil and also in other countries such as China and Italy, due to the fact that they reduce the reproduction rate and the time of duplication of the disease. However, there is a divergence in the literature regarding the use of terms to treat this measure. Quarantine, social isolation, self-isolation and social detachment are often mentioned for the same purpose. Thus, to remedy this problem, the MS presented on its page, a definition for each of these strategies, in order to alleviate the possible confusions.³³

Thus, it is believed that the attitudes adopted by the Ministry of Health in Brazil and described in this work are in line with the actions taken by other countries, which faced COVID-19 and were successful in their results. However, the underreporting of less severe cases of the disease is worrying.⁷

CONCLUSION

The actions of the Brazilian authorities in the face of the COVID-19 pandemic in Brazil, were listed in order to verify the effectiveness in combating the spread of the disease.

In response to the guiding question of this review, non-pharmacological measures such as social isolation, quarantine and hand hygiene, are among the main recommendations made to the Brazilian population, due to the absence of preventive immunizations and drugs for treatment. Thus, it is clear that the measures taken by Brazil were based on behaviors that were effective in other public health emergencies in the country, and that presented clinical and epidemiological characteristics similar to the etiological agent of the current pandemic, thus contributing to the reduction of contamination and virus transmission. ■

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