

# Analysis of the mechanical ventilator panel in Brazilian municipalities during the pandemic of COVID-19

Análise do painel de ventiladores mecânicos nos municípios brasileiros durante a pandemia COVID-19

Análisis del panel de ventiladores mecánicos en municipios brasileños durante la pandemia COVID-19

## RESUMO

Objetivo: analisar o painel de ventiladores mecânicos distribuídos nos municípios brasileiros durante a pandemia de COVID-19. Métodos: Estudo descritivo, com abordagem quantitativa. Realizou-se uma busca na plataforma LocalizaSUS depois na aba Painel de Ventiladores do Ministério da Saúde no período de 01 de abril de 2020 a 31 de abril de 2021, no Brasil. Resultados: No total foram utilizados: ventiladores (17.888), ventiladores UTI (10.109), ventiladores transporte (7.779), nas esferas: estadual(8.912) e municipal (8.976). Conclusão: Os insumos utilizados em pacientes infectados com a COVID-19 que apresentaram um quadro clínico considerado grave com risco de morte tendo indicação no tratamento a aquisição de ventiladores pelos gestores de saúde, portanto devem ser mensurados mensalmente a fim de planejar a logística da compra e distribuição contínua para atender conforme a necessidade a demanda nos municípios no Brasil.

**DESCRIPTORES:** Covid-19; Saúde coletiva; Ventiladores mecânicos.

## ABSTRACT

Objective: to analyze the panel of mechanical ventilators distributed in Brazilian municipalities during the pandemic of COVID-19. Methods: Descriptive study, with a quantitative approach. A search was conducted in the LocalizaSUS platform after in the Ventilator Panel tab of the Ministry of Health in the period from April 01, 2020 to April 31, 2021, in Brazil. Results: In total were used: ventilators (17,888), ICU ventilators (10,109), transport ventilators (7,779), in the spheres: state(8,912) and municipal (8,976). Conclusion: The supplies used in patients infected with COVID-19 who presented a clinical picture considered severe and life-threatening having indication in the treatment the acquisition of ventilators by health managers, so they should be measured monthly in order to plan the logistics of the purchase and continuous distribution to meet as needed the demand in municipalities in Brazil.

**DESCRIPTORS:** Covid-19; Collective health; Mechanical ventilators.

## RESUMEN

Objetivo: analizar el panel de ventiladores mecánicos distribuidos en municipios brasileños durante la pandemia COVID-19. Métodos: Estudio descriptivo con abordaje cuantitativo. Se realizó una búsqueda en la plataforma LocalizaSUS y luego en la pestaña Fan Panel del Ministerio de Salud en el período del 1 de abril de 2020 al 31 de abril de 2021, en Brasil. Resultados: En total se utilizaron: ventiladores (17,888), ventiladores de UCI (10,109), ventiladores de transporte (7,779), en las esferas: estatal (8,912) y municipal (8,976). Conclusión: Los insumos utilizados en pacientes infectados por COVID-19 que presentaban una condición clínica considerada grave con riesgo de muerte, con una indicación en el tratamiento de la compra de ventiladores por parte de los gestores de salud, por lo que deben medirse mensualmente para poder planificar. La logística de compra y la distribución continua para satisfacer la demanda en los municipios de Brasil según sea necesario.

**DESCRIPTORES:** Covid-19; Salud colectiva; Ventiladores mecánicos

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**INTRODUCTION**

The management of patients contaminated with SARS COV-2 in the most serious cases according to clinical conditions implies the artificial treatment adopted of mechanical ventilatory support through medical assistance to stabilize vital signs and provide adequate oxygen conditions. 1

In view of the above, managers in the three spheres are recommended to offer and distribute supplies related to mechanical ventilatory support according to the demand of the Brazilian population affected in severe cases of COVID-19.

Therefore, the objective was to analyze the panel of mechanical ventilators distributed in Brazilian municipalities during the COVID-19 pandemic.

**METHOD**

The study design is descriptive with a quantitative approach. 2

Initially, a search was carried out on the LocalizaSUS platform, 3 and then in the "Ventilator Panel" tab of the Ministry of Health from April 1, 2020 to April 30, 2021, in Brazil. The data search took place during the month of May 2021.

Due to the fact that the research was legitimized through secondary data, there was no requirement for submission and acceptance to the Ethics Committee, however, the ethical principles of resolution No.

466/2012 from the National Health Council were respected. 4

**RESULTS AND DISCUSSION**

In total, 17,888 ventilators were used in Brazilian states and municipalities. Thus arranged in: Intensive Transport Unit-ICU ventilators (10,109), transport ventilators (7,779). Therefore, ICU ventilators corroborated with the greatest significance (Table 1).

Thus, Silva<sup>5</sup> et. al., (2021) report the

recommendations related to the previous training of the health team regarding the proper handling of the ICU mechanical ventilator in patients with COVID-19, during the assembly and disassembly technique. Emphasizing biosecurity measures to prevent the spread of coronavirus among health professionals.

In this perspective, Botelho<sup>6</sup> et al.(2021) corroborate the clinical follow-up of patients hospitalized in the ICU for SARS COV-2 during the provision of medical care, in which the health team

Table 1: Quantitative of types of mechanical ventilators used during COVID-19 in Brazil, 2021.

Types of Mechanical ventilators	Number of Mechanical ventilators(N)
ICU ventilators	10.109
Transport ventilators	7.779
Total	17.888

Source: LocalizaSUS, 2021

Table 2: Quantity of mechanical ventilators by municipal and state management in Brazil, 2021

Management Spheres	Number of Mechanical ventilators(N)(N)
Municipal	8.912
State	8.976
Total	17.888

Source: LocalizaSUS, 2021

must monitor the clinical parameters of the respiratory rate of patients who are arranged on the mechanical ventilator monitor; evaluate signs and symptoms and, in cases of stability of the clinical condition, wean the equipment safely to the patient and health professional when exposed to biological materials present in the mechanical ventilator.

The distribution of mechanical ventilators was presented in the following spheres: state (8,912) and municipal (8,976). State

management predominated in the amount of equipment, although the discrimination considered in 64 mechanical ventilators (table 2).

## CONCLUSION

The inputs used in patients infected with COVID-19 who presented a clinical condition considered serious, with risk of death, with an indication in the treatment for the acquisition of ventilators by health

managers. Therefore, they must be measured monthly in order to plan the logistics of purchase and continuous distribution to meet the need according to demand in municipalities and states in Brazil.

Thus, it was verified, through the findings, the significance of handling mechanical ventilators for the Intensive Care Unit-ICU sector, in the management of the supply of equipment at the municipal level. ■

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