



Hospital admission and mortality rates for non-COVID-19 respiratory diseases in Brazil's public health system during the covid-19 pandemic: a nationwide observational study

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Table S1. Number of in-hospital and outpatient procedures performed from March to December of 2015 through 2020 based on the ICD-10 and categorized according to pathophysiological similarity.

	In-hospital Procedures		Outpatient Procedures	
	Number	Percentage	Number	Percentage
Laboratory tests				
Biopsy	6,321	4.77%	6,293	0.01%
Bronchoalveolar Lavage	156	0.12%	29,328	0.03%
Total	6,477	4.89%	35,621	0.04%
Imaging exams				
Bronchography	0	0.00%	67	0.00%
Bronchoscopy	10,305	7.77%	96,626	0.10%
Chest ultrasound	238	0.18%	75,726	0.07%
Scintigraphy	51	0.04%	21,004	0.02%
Thoracic MRI	37	0.03%	62,341	0.06%
Chest X-ray	40,467	30.52%	86,281,504	84.28%
Thorax CT	6,955	5.25%	4,394,638	4.29%
Tracheoscopy	28,684	21.63%	50,725	0.05%
Video thoracoscopy	5,151	3.88%	-	0.00%
Total	91,888	69.30%	90,982,631	88.87%
Respiratory function tests				
Respiratory function	1,426	1.08%	716,154	0.70%
Spirography	20	0.01%	58,496	0.06%
Spirometry	0	0.00%	1,136,023	1.11%
Total	1,446	1.09%	1,910,673	1.87%
Blood Gases (Total)	32,782	24.72%	9,442,925	9.22%
Grand Total	132,593	100.00%	102,371,850	100.00%

MRI: magnetic resonance imaging; CT: computed tomography.

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Table S2. Number of hospitalizations and intra-hospital deaths from March to December of 2015 through 2020 based on the ICD-10 and categorized according to pathophysiological similarity.

	Hospitalizations		Intra-hospital Deaths	
	Number	Percentage	Number	Percentage
Acute respiratory diseases				
Acute inflammatory respiratory diseases				
Acute bronchitis and bronchiolitis	295,113	5.12%	1,821	0.38%
Acute respiratory diseases	59,470	1.03%	66	0.01%
Acute laryngitis and tracheitis	52,597	0.91%	242	0.05%
Total	407,108	7.06%	2,129	0.44%
Acute airway infections				
Influenza [flu]	113,212	1.96%	5,069	1.05%
Pneumonia	110,100	1.91%	1,248	0.26%
Other acute upper airway infections	3,046,999	52.86%	285,538	59.22%
Total	3,270,311	56.73%	291,855	60.53%
Total acute respiratory diseases	3,677,491	63.79%	293,984	60.97%
Chronic respiratory diseases				
Asthma				
Asthma	447,422	7.76%	2,382	0.49%
Bronchiectasis				
Bronchiectasis	6,787	0.12%	193	0.04%
Other chronic obstructive lung diseases				
Other chronic obstructive lung diseases	550,433	9.56%	42,504	8.81%
Chronic diseases of the tonsils and adenoids				
Chronic diseases of the tonsils and adenoids	235,949	4.09%	12	0.00%
Pneumoconiosis				
Pneumoconiosis	3,027	0.05%	374	0.08%
Chronic sinusitis				
Chronic sinusitis	12,936	0.22%	43	0.01%
Total chronic respiratory diseases	1,256,554	21.80%	45,508	9.43%
Other respiratory diseases				
Other diseases of the respiratory system				
Other diseases of the respiratory system	675,122	11.71%	141,942	29.44%
Other diseases of the nose and sinuses				
Other diseases of the nose and sinuses	88,617	1.54%	38	0.01%
Other diseases of the upper respiratory tract				
Other diseases of the upper respiratory tract	66,943	1.16%	721	0.15%
Total Other Respiratory Diseases	830,682	14.41%	142,701	29.60%
Grand Total	5,764,727	100.00%	482,193	100.00%

Table S3. Statistical analysis of the number of hospitalizations based on the ICD-10 classification from March to December, comparing the years 2019 and 2020.

	March to December 2019	March to December 2020	% difference	Estimated number of procedures	(CI > 95%)	p-value
Acute respiratory diseases						
Acute inflammatory respiratory diseases						
Acute bronchitis and bronchiolitis	61,393	16,786	-73%	65,494	55,239 - 75,748	0.0000
Acute respiratory diseases	11,610	4,880	-58%	12,199	10,809 - 13,588	0.0000
Acute laryngitis and tracheitis	8,832	3,149	-64%	8,529	5,899 - 11,158	0.0004
Total	81,835	24,815	-70%	86,222	73,248 - 99,194	0.0000
Acute airway infections						
Influenza [flu]	16,269	22,341	37%	14,349	8,328 - 20,369	0.0015
Pneumonia	560,335	301,943	-46%	559,826	529,014 - 590,637	0.0000
Other acute upper airway infections	20,666	11,118	-46%	21,454	18,436 - 24,472	0.0001
Total	597,270	335,402	-44%	595,629	566,379 - 624,879	0.0000
Total acute respiratory diseases	679,105	360,217	-47%	681,851	639,627 - 724,073	0.0000
Chronic respiratory diseases						
Asthma	70,179	38,137	-46%	63,158	47,309 - 79,006	0.0009
Bronchiectasis	1,130	521	-54%	1,077	448 - 1,705	0.0048
Other chronic obstructive lung diseases	94,987	51,915	-45%	91,825	79,315 - 10,4334	0.0001
Chronic diseases of the tonsils and adenoids	46,908	15,785	-66%	46,529	35,543 - 57,513	0.0002
Pneumoconiosis	560	408	-27%	557	400 - 713	0.0039
Chronic sinusitis	2,570	1,157	-55%	2,650	2,516 - 2,784	0.0000
Total chronic respiratory diseases	216,334	107,923	-50%	205,796	173,355 - 238,236	0.0001
Other respiratory diseases						
Other diseases of the respiratory system	113,494	120,339	6%	113,494	107,254 - 118,460	0.0015
Other diseases of the nose and sinuses	17,422	6,722	-61%	17,422	11,155 - 22,118	0.0006
Other diseases of the upper respiratory tract	11,218	5,703	-49%	11,218	8,317 - 13,036	0.0004
Total Other Respiratory Diseases	142,134	132,764	-7%	142,134	128,217 - 152,125	0.0128
Grand Total	1,037,573	600,904	-42%	1,027,819	948,420 - 1,107,216	0.0000

Table S4. Number of hospitalizations and intra-hospital deaths from March to December of 2015 through 2020 based on the nature of the service (elective or urgent), age, race, and sex.

	Hospitalizations		Intra-hospital Deaths	
	Number	Percentage	Number	Percentage
Nature of the service				
Elective	555,235	9.63%	18,419	3.82%
Urgent	5,209,492	90.37%	463,774	96.18%
Total	5,764,727	100.00%	482,193	100.00%
Age (years)				
0-19	2,412,247	41.85%	15,243	3.16%
20-59	1,263,780	21.92%	88,939	18.45%
60+	2,088,700	36.23%	378,011	78.39%
Total	5,764,727	100.00%	482,193	100.00%
Race				
White	2,003,485	34.76%	194,796	40.40%
Brown	1,978,674	34.32%	137,582	28.53%
Black	169,125	2.93%	18,970	3.94%
Asian	107,822	1.87%	8,400	1.74%
Indigenous	27,398	0.48%	774	0.16%
Not informed	1,478,223	25.64%	121,671	25.23%
Total	5,764,727	100.00%	482,193	100.00%
Sex				
Female	2,740,282	47.54%	228,521	47.39%
Male	3,024,445	52.46%	253,672	52.61%
Total	5,764,727	100.00%	482,193	100.00%

Table S5. Number of hospitalizations and intra-hospital deaths from March to December of 2015 through 2020 according to federative region and state.

Federative Region	State	Hospitalizations		Intra-hospital Deaths	
		Number	Percentage	Number	Percentage
Midwest	DF	78,761	1.37%	4,539	0.94%
	GO	177,198	3.07%	11,989	2.49%
	MS	96,358	1.67%	8,130	1.69%
	MT	93,635	1.62%	6,560	1.36%
	Total	445,952	7.73%	31,218	6.48%
Northeast	AL	64,470	1.12%	6,433	1.33%
	BA	406,570	7.05%	25,267	5.24%
	CE	234,794	4.07%	22,492	4.66%
	MA	224,929	3.90%	8,184	1.70%
	PB	102,198	1.77%	9,134	1.90%
	PE	213,020	3.70%	18,668	3.87%
	PI	120,485	2.09%	6,420	1.33%
	RN	57,777	1.00%	5,991	1.24%
	SE	36,122	0.63%	4,106	0.85%
Total	1,460,365	25.33%	106,695	22.12%	
North	AC	15,939	0.28%	1,773	0.37%
	AM	76,779	1.33%	4,779	0.99%
	AP	18,980	0.33%	938	0.19%
	PA	262,072	4.55%	10,931	2.27%
	RO	62,148	1.08%	3,388	0.70%
	RR	16,866	0.29%	1,338	0.28%
	TO	34,415	0.60%	2,355	0.49%
	Total	487,199	8.46%	25,502	5.29%
Southeast	ES	110,034	1.91%	8,863	1.84%
	MG	619,537	10.75%	54,501	11.30%
	RJ	264,452	4.59%	36,540	7.58%
	SP	1,162,092	20.16%	119,310	24.74%
	Total	2,156,115	37.41%	219,214	45.46%
South	PR	472,168	8.19%	32,540	6.75%
	RS	474,122	8.22%	45,318	9.40%
	SC	268,806	4.66%	21,706	4.50%
	Total	1,215,096	21.07%	99,564	20.65%
Grand Total		5,764,727	100.00%	482,193	100.00%

Table S6. Number of in-hospital and outpatient procedures from March to December of 2015 through 2020 according to federative region and state.

Federative Region	State	In-hospital Procedures		Outpatient Procedures	
		Number	Percentage	Number	Percentage
Midwest	DF	1,087	0.82%	1,024,586	1.00%
	GO	1,386	1.05%	2,567,113	2.51%
	MS	1,583	1.19%	717,704	0.70%
	MT	176	0.13%	1,709,076	1.67%
	Total	4,232	3.19%	6,018,479	5.88%
Northeast	AL	1,011	0.76%	476,108	0.47%
	BA	3,412	2.57%	4,231,886	4.13%
	CE	211	0.16%	3,421,635	3.34%
	MA	251	0.19%	2,406,761	2.35%
	PB	615	0.46%	867,251	0.85%
	PE	2,440	1.84%	3,020,744	2.95%
	PI	278	0.21%	622,119	0.61%
	RN	1,214	0.92%	658,919	0.64%
	SE	139	0.10%	304,661	0.30%
Total	9,571	7.22%	16,010,084	15.64%	
North	AC	122	0.09%	566,284	0.55%
	AM	101	0.08%	2,407,703	2.35%
	AP	18	0.01%	968,729	0.95%
	PA	848	0.64%	2,872,021	2.81%
	RO	150	0.11%	1,316,132	1.29%
	RR	11	0.01%	590,100	0.58%
	TO	116	0.09%	593,224	0.58%
Total	1,366	1.03%	9,314,193	9.10%	
Southeast	ES	1,776	1.34%	2,068,241	2.02%
	MG	20,932	15.79%	9,027,259	8.82%
	RJ	3,976	3.00%	10,779,838	10.53%
	SP	24,930	18.80%	36,399,075	35.56%
Total	51,614	38.93%	58,274,413	56.92%	
South	PR	28,779	21.70%	4,042,569	3.95%
	RS	19,200	14.48%	5,475,839	5.35%
	SC	17,831	13.45%	3,236,273	3.16%
	Total	65,810	49.63%	12,754,681	12.46%
Grand Total		132,593	100.00%	102,371,850	100.00%