

## São Paulo State Primary Health Care in coping with COVID-19: A population size analysis

Mônica Martins de Oliveira Viana (<https://orcid.org/0000-0003-3049-4518>)<sup>1</sup>  
Lígia Schiavon Duarte (<https://orcid.org/0000-0001-5822-9033>)<sup>1</sup>  
Maria Mercedes Loureiro Escuder (<https://orcid.org/0000-0002-3103-2617>)<sup>1</sup>  
Mariana Tarricone Garcia (<https://orcid.org/0000-0001-5124-8936>)<sup>1</sup>  
Michelle Fernandez (<https://orcid.org/0000-0003-0224-0991>)<sup>2</sup>  
Maria Izabel Sanches Costa (<https://orcid.org/0000-0002-9117-5089>)<sup>1</sup>  
Miriam Vaz Ferreira Neves (<https://orcid.org/0009-0001-4519-7033>)<sup>1</sup>

**Abstract** *This article aims to understand how the cities of São Paulo state organized the coping with the COVID-19 pandemic, highlighting the role of Primary Health Care (PHC) as an analyzing element of the healthcare model. This descriptive quantitative study was grounded on a survey with a probabilistic sample of 253 municipalities in the state of São Paulo in which municipal managers were interviewed through a questionnaire. Absolute (n) and relative (%) frequencies were described after weighting according to the three population strata. The results indicate that the population size is an essential analytical component. During the pandemic, the organization prioritized flow readjustment and clinical care in most municipalities. Prenatal care and childcare continuing actions consisted of biomedical actions with appointments. Regarding the promotion of expanded healthcare responses, the smaller municipalities, which are structured based on the PHC, performed better. On the other hand, large cities fragmented healthcare and vaccination. The intersectoral actions of community care and from a territorial perspective were still retracted, and PHC still struggles.*

**Key words** *Unified Health System, Primary Health Care, COVID-19, Municipal Health System, Healthcare Models*

<sup>1</sup>Instituto de Saúde,  
Secretaria de Estado da  
Saúde de São Paulo. R. Santo  
Antônio 590, Bela Vista.  
01314-000 São Paulo SP  
Brasil. [monica.psisaude@  
gmail.com](mailto:monica.psisaude@gmail.com)

<sup>2</sup>Instituto de Ciência  
Política, Universidade de  
Brasília. Brasília DF Brasil.

## Introduction

During the SARS-CoV-2 virus pandemic, the literature reinforced the vital role of Primary Care in epidemiological surveillance, dissemination of preventive measures, community care actions, assistance for diagnosed mild cases, and the monitoring of identified socially vulnerable households<sup>1,2</sup>. Therefore, robust plans to combat COVID-19 included strengthening PHC for comprehensive care, emphasizing mapping actions and intersectoral interventions to address social and mental health issues, and continuing care for priority groups (pregnant women, babies, and older adults) and those with chronic diseases<sup>3-11</sup>. Successful experiences in dealing with the COVID-19 pandemic corroborate this understanding<sup>12,13</sup>.

This set of proposals on PHC's role in responding to the health crisis caused by COVID-19 aligns with the perspective of expanded PHC action<sup>4,8</sup>, aligned with the concept of comprehensive PHC<sup>14</sup>. It points to the Family Health Strategy (ESF), with the presence of Community Health Workers (ACS)<sup>15</sup>, as an eminent resource for implementing the attributes of first contact, comprehensiveness, network care coordination, and guidance for the community during health emergencies<sup>16</sup>.

In Brazil, the response to the new coronavirus was initially hospital care-centered, aiming at intensive treatment for severe cases<sup>6</sup>. Epidemiological surveillance actions also gained prominence, but separately from PHC, which should identify suspected cases and refer them for testing in Emergency Care Units or Hospitals<sup>17</sup>. Also, regarding territory and community prevention actions, the Ministry of Health<sup>18</sup> formulated generic and contradictory recommendations, indicating underutilization of PHC and ACS<sup>19,20</sup>, putting the expanded care continuity in the territory at risk<sup>6</sup>.

Access was being reduced even before the pandemic, with changes in the National Primary Care Policy (PNAB 2017) and financing, with *Previne Brasil*<sup>14,21,22</sup>. In this sense, the setting of a retracted Family Health Strategy (ESF), which tends to focus actions and restrict access, may have "cooled down" the possibilities of implementing expanded care during the health crisis.

Thus, the heterogeneous proposals for PHC during the pandemic and a setting of ESF dismantling from 2017 to 2022 suggest the relevance of studies on this care level, which can be taken as an analyzer of the field of dispute surrounding the care model that can be inferred from the organization of PHC within the health system<sup>14,23</sup>.

The need to include the problem of the care model in understanding this PHC organization outlook during the health crisis of the pandemic arises from the structuring role of PHC in building care models. Even if we assumed that it is impossible to have a single model for municipalities to face the traditional biomedical model, the need to structure a PHC aligned with health needs, taken in its expanded conception, is recognized to advance the purpose of the Unified Health System (SUS) guidelines<sup>23</sup>.

In this sense, the formulation of the Family Health Strategy, with its emphasis on the ACS actions, proximity to the territory, clientele ascription, interdisciplinary work, and the community approach in synergy with health surveillance actions, can be understood as a proposal for an alternative model<sup>23</sup>. However, it still shows heterogeneity in its implementation, besides significant challenges for implementing its actions within this comprehensive care and expanded care scope<sup>14,24,25</sup>.

Above all, the implementation of the ESF and PHC organization in general has been associated with sociodemographic issues and population size. Relevant differences are identified in adherence to the ESF in small and large municipalities. These groups have observed distinct difficulties and the need to operate arrangements to singularize the care model. However, greater adherence is mentioned in small municipalities, with more difficulty retaining teams, especially medical professionals, and the ESF needs to coexist with urgent and emergency care network services and other complexity levels<sup>26-28</sup>.

This outlook of diversity in population size and diversity in the organization of PHC and ESF is also identified in the state of São Paulo<sup>28</sup> and precisely points out that the ESF did not develop homogeneously or as a priority model in all locations. During the pandemic, the PHC community attributes, which stand out in the ESF, may have lost prominence or undergone reformulations in light of the recommended social distancing. Therefore, it is crucial to understand how managers of São Paulo municipalities of different population sizes organized the fight against the COVID-19 pandemic, highlighting the role of PHC in advancing discussions on the care model in municipalities of different population sizes.

Therefore, this article aims to understand how São Paulo municipalities of different population sizes organized the fight against the COVID-19 pandemic, highlighting the role of PHC as an analyzing element of the care model.

## Methods

This descriptive quantitative study produced data from an electronic survey with 253 municipal managers through telephone contact or video calls to characterize the PHC structure and organization during the pandemic from February to June 2022. The form is structured on the RedCap platform and organized into seven blocks:

(i) Model of care in primary care: description of services, territorialization, access, organization of care in a network, and characterization of teams and professionals working in PHC;

(ii) General characteristics of the municipality's primary care management: outsourcing of management, recruiting doctors, ACS, and other professionals, participation in support programs for the supply of doctors for PHC;

(iii) Initial adaptation to the pandemic context: PHC reorganization and initial adaptations, implementation of new services, provision of PPE, access to services to assist severe cases, prevention actions led by municipal management, provision of training for SUS workers, types of support from entities federated to the municipality, adaptations of PHC human resources, care to the socially vulnerable population;

(iv) COVID-19 health actions (during 2020/21): PHC reorganization and adaptations, running COVID-19 tests, monitoring cases and contacts, flows for moderate and severe cases and post-COVID-19 sequelae, social and psychological support, vaccination against COVID-19;

(v) Continuity of primary care activities (during 2020/21): maintenance, adaptation, or interruption of routine activities of PHC teams;

(vi) General impressions: PHC's role and performance during the pandemic; and

(vii) Successful experiences in the pandemic: voluntary description of experiences.

The study population consisted of a probabilistic sample of the municipalities of São Paulo, aiming to guarantee the representativeness of São Paulo's municipalities by population size to enable the analysis of characteristics in different settings<sup>26,27</sup>. In this way, the sample was drawn up from three strata: (i) municipalities with 50 thousand inhabitants and more (n=139); (ii) municipalities between 10 thousand and 50 thousand inhabitants (n=239); (iii) municipalities with up to 10 thousand inhabitants (n=267). The stratum (i) municipalities with 50 thousand inhabitants and more was performed on a census basis for

139 municipalities. For strata (ii) and (iii), the samples were defined using as a criterion the availability of traditional UBS teams and ESF<sup>29</sup> teams, totaling, in stratum (ii) and (iii), a sample of 60 municipalities each. The three strata together generated a sample of 259 municipalities, of which 253 agreed to respond to the survey.

In stratum (i) municipalities with 50 thousand inhabitants or more, 132 of the 139 planned participants were interviewed; in stratum (ii) municipalities with 10 to 50 thousand inhabitants, 66 of the 60 planned participated; and in stratum (iii) municipalities with up to 10 thousand inhabitants, 55 of the 60 sampled were interviewed. Thus, the sample losses correspond to six municipalities and occurred due to the refusal or inability to participate due to a recent change in management positions.

Answers could be provided by the Municipal Health Secretaries, the Primary Care Coordinator, the Health Director, or a similar position during the questionnaire application. The data captured were exported to the Stata software for tabulation and analysis by describing the absolute (n) and relative (%) frequencies after being weighted by sampling design, considering the strata described previously.

The chi-square test was used to identify differences between municipalities of different population sizes regarding the recruitment of doctors, types of services offered by PHC, actions to combat the pandemic, and discontinued PHC activities during the pandemic. The variables that showed statistically significant differences ( $p < 0.05$ ) were subjected to residual analysis in a contingency table. Considering the 95% confidence level, all  $Z_{Res} > |1.96|$  were considered an excess or lack of occurrence<sup>30</sup>.

All ethical recommendations for social and human research contained in Resolution No. 510/2016<sup>31</sup> were complied with and abided by the procedures required for research in a virtual environment in Circular Letter No. 1/2021-CONEP/SECNS/MS<sup>32</sup>, with presentation and signature of the Informed Consent Terms (TCLE). The study is nested in the research "Primary Health Care Policy in the Context of the Pandemic in the Municipalities of São Paulo", conducted by the Health Institute - SES/SP, funded by the Special Health Fund for Mass Immunization and Disease Control (FESIMA) and approved by the Ethics Committee under Opinion No. 4.842.154 - CAAE 48513721.80000.5469.

## Results

The responsible for the responses were Health Secretaries in 40.6% of cases, Primary Care Coordinators in 26.9%, and Health Directors or similar positions in 12.1%. Regarding the PHC structure before the pandemic (Table 1), 61.3% of the municipalities stated that they had exclusively Family Health (SF) units, 44.4% traditional UBS, 41.4% traditional UBS with Family Health elements (such as Community Health Workers), and 12.6% traditional UBS integrated into the Emergency Care Unit (UPA). Within the eminent heterogeneity highlighted, we identified that exclusive SF units are essential in all population strata when considering that the same municipality uses multiple types of units for PHC. However, in larger municipalities, the type of UBS that ranks second is the traditional one, which can generate conflict regarding the conformation of the care model.

In smaller municipalities, we underscore traditional units with SF elements and traditional units integrated into the UPA, pointing to a possible incremental trend in arrangements due to the municipality's dependence on this care level.

Concerning client access, we identified that municipalities tend to recommend that the flow begins preferably via PHC (54.3% of municipalities). The preference for seeking to offer care in PHC through general practitioners or family doctors instead of specialists was also highlighted (65.3% of municipalities), suggesting some affinity with the ESF guidelines.

However, this ideological inclination does not materialize quickly, as 65% of municipalities declare they struggle to recruit doctors to work in PHC (Table 2). In this regard, there is a difference between population sizes ( $p=0.000$ ); the largest municipalities, with more than 10 thousand inhabitants (ZRes 5.1), followed by those with 50 thousand or more (ZRes 3.4) were those that, proportionally, had the most significant difficulty.

Regarding the healthcare network services to which PHC has access, whether in the municipality or the region (Table 2), we noted that access to hospital care, a level of complexity relevant to COVID-19 treatment, showed no significant difference between population sizes ( $p=0.569$ ) and was marked as an available service by 75.1% of all participants. However, the disparity regarding the availability of the SAMU service ( $p=0.000$ ) draws attention, especially in smaller municipalities, where the residual analysis test (ZRes

-8.2) showed a lower concentration of responses, which could harm the transport of clients to more complex services, especially hospitals, and which are generally in municipalities in the region. This trend continues concerning access to matrix support teams and UPA services, with less availability in smaller municipalities, which may have hampered the care of COVID-19 cases.

To organize COVID-19 care in PHC, municipalities with more than 50 thousand inhabitants tended to advise that all UBS should provide care for suspected mild COVID-19 cases. In municipalities with between 10 and 50 thousand inhabitants, the most common options were creating/transforming exclusive UBS for COVID-19 care (ZRes 3.4) or advising that no UBS should provide these services (ZRes 4.6). This applies to the implementation of the COVID-19 Center ( $p<0.000$ ), in which municipalities in this population stratum concentrate on this type of response (ZRes 4.6), followed by municipalities larger than 50 thousand inhabitants (ZRes 2.2). The smaller municipalities, with less than 10 thousand inhabitants, tended to separate the flow for respiratory symptomatic patients within the existing UBS ( $p<0.000$  and ZRes 3.4), establishing exclusive spaces for respiratory symptomatic patients ( $p<0.000$  and ZRes 2.5). Campaigns to encourage social isolation occurred proportionally across the three strata ( $p=0.317$ ) and were mentioned by 71.7% of the total participants, in the same way as the need to recruit professionals (79.7%  $p=0.457$ ). However, the recommendation for monitoring all patients with COVID-19 was concentrated in small municipalities (Table 3).

An action traditionally related to PHC, when intended for COVID-19, in larger municipalities, vaccination (Table 3) was made available at drive-thru stations ( $p<0.000$  and ZRes 9.3) and in public places ( $p<0.000$  and ZRes 6.9). In municipalities with between 10 and 50 thousand inhabitants, most occurred in UBS allocated specifically for vaccines ( $p<0.000$  and ZRes 4.4). In municipalities with less than 10 thousand inhabitants, vaccination occurred in the UBS closest to the client's residence ( $p<0.004$  and ZRes 3.3).

Management recommendations for intersectoral actions and social support for people in vulnerable situations (Table 4) were mentioned, respectively, by 78.7% ( $p<0.079$ ) and 79% ( $p=0.102$ ) of the municipalities. The structuring of some psychological support and encouraging actions in partnership with NGOs, civil society community movements, or third-sector organizations were concentrated in municipalities with

**Table 1.** Distribution of types of PHC units in municipalities in the state of São Paulo by population size. State of São Paulo, 2022.

Type of PHC units	<10 thousand inhabitants		10-50 thousand inhabitants		>50 thousand inhabitants		Total	
	N	%	N	%	N	%	N	%
	Exclusive Family Health Unit (USF)	98	45.5	140	68.2	101	76.5	339
Exclusive traditional PHC Unit (UBS/UAPS)	71	32.7	87	42.4	88	66.7	246	44.4
Traditional PHC unit (UBS/UAPS) with the Community Health Workers Program (PACS) or with the Family Health Team (ESF)	94	43.6	81	39.4	54	40.9	229	41.4
Traditional PHC unit (UBS/UAPS) integrated into the Emergency Care Unit (EC)	43	20.0	16	7.6	11	8.3	70	12.6
Health Outpost – Units without permanent full-time teams (mobile teams)	-	0.0	19	9.1	2	1.5	21	3.7
Family Health Unit (USF) integrated into the Emergency Care Unit (EC)	4	1.8	-	0.0	9	6.8	13	2.3
Others	31	14.5	37	18.2	25	18.9	94	16.9

Source: Research “Primary Health Care policy in the context of the pandemic in São Paulo state municipalities”.

**Table 2.** Recruitment of doctors and types of services offered by PHC in municipalities in the state of São Paulo by population size. State of São Paulo, 2022.

	<10 thousand inhabitants			10-50 thousand inhabitants			>50 thousand inhabitants			Total		p-value
	N	%	ZRes	N	%	ZRes	N	%	ZRes	N	%	
	Difficulty recruiting a doctor for PHC	98	45.5	<b>-8.0</b>	161	78.8	<b>5.1</b>	102	77.9	<b>3.4</b>	362	
At some point, it included professionals from support programs ( <i>Mais Médicos, Médicos pelo Brasil, and Proverb</i> )	94	43.6	<b>-7.7</b>	143	69.7	<b>2.4</b>	113	85.6	<b>6.1</b>	350	63.3	<b>0.000</b>
PHC service offering												
Specialty outpatient clinics (E.g., Polyclinic, MSOC, Specialty center)	200	92.7	-0.4	186	90.9	-1.7	129	97.7	<b>2.4</b>	515	93.2	<b>0.043</b>
Reference services for STIs, AIDS, and viral hepatitis	153	70.9	<b>-1.9</b>	140	68.2	-2.9	123	93.2	<b>5.5</b>	416	75.2	<b>0.000</b>
Hospital care services	157	72.7		158	77.3		100	75.8		415	75.1	0.569
CAPS	114	52.7	<b>-7.2</b>	146	71.2	0.3	129	97.7	<b>7.9</b>	389	70.3	<b>0.000</b>
Matrix support teams	102	48.1	<b>-8.0</b>	165	80.3	<b>4.8</b>	107	81.1	<b>3.7</b>	374	68.1	<b>0.000</b>
Emergency Care Units (UPA) or equivalent service	118	54.5	<b>-4.7</b>	137	66.7	0.2	112	84.8	<b>5.2</b>	366	66.3	<b>0.000</b>
Urgent Medical Care Service (SAMU) or equivalent	90	41.8	<b>-8.2</b>	143	69.7	<b>2.6</b>	114	86.4	<b>6.4</b>	347	62.8	<b>0.000</b>
CEO (Dental Specialties Center) or equivalent	71	32.7	<b>-7.0</b>	102	50.0	-0.5	111	84.1	<b>8.6</b>	284	51.4	<b>0.000</b>
Other	16	7.3	<b>-2.4</b>	16	7.6	-2.0	31	23.5	<b>5.0</b>	62	11.3	<b>0.000</b>

Note: Values in bold mean being out of standard against the expected distribution: >1.96 indicates excess occurrence, and <-1.96 means lack of occurrence.

Source: Research “Primary Health Care policy in the context of the pandemic in São Paulo state municipalities”.

more than 50 thousand inhabitants (ZRes 3.6 and 2.6, respectively).

Educational actions in social facilities in the territory (38.3% p=0.097), the mapping of groups

at higher risk of clinical complications (36.9% p=0.083), and the identification of groups with the highest social vulnerability (26.8% p<0.002) were mentioned less frequently. The intermediate

municipalities, with populations between 10 and 50 thousand inhabitants, least reported this mapping type (ZRes -3.0).

The municipalities of the three population sizes studied showed similar trends regarding continuing/discontinuing main actions planned

**Table 3.** Distribution of actions to combat the pandemic developed from 2020 to 2021 in the state of São Paulo municipalities by population size. State of São Paulo, 2022.

	<10 thousand inhabitants			10-50 thousand inhabitants			>50 thousand inhabitants			Total		P-value
	N	%	ZRes	N	%	ZRes	N	%	ZRes	N	%	
Strategy for structuring PHC during the pandemic												0.000
Creation/transformation of exclusive UBS for COVID-19 care	82	38.7	-0.2	99	48.5	<b>3.4</b>	34	25.8	<b>-3.6</b>	215	39.2	
All UBS should provide COVID-19 care	67	31.6	-0.1	43	21.1	<b>-4.1</b>	64	48.5	<b>4.7</b>	174	31.8	
No UBS was advised to provide COVID-19 care	8	3.8	<b>-3.5</b>	34	16.7	<b>4.6</b>	9	6.8	-1.1	51	9.3	
Others	55	25.9	<b>2.9</b>	28	13.7	<b>-2.7</b>	25	18.9	-0.3	108	19.7	
Implementation of a COVID-19 Center	122	56.5	<b>-6.5</b>	171	83.4	<b>4.6</b>	105	79.5	<b>2.2</b>	398	72.0	<b>0.000</b>
Actions/adaptations performed at UBS to combat COVID-19												
Separation of flows for respiratory symptoms within the UBS	181	83.6	<b>3.4</b>	130	63.6	<b>-5.2</b>	109	82.6	<b>2.0</b>	420	76.0	<b>0.000</b>
Campaigns to encourage social distancing	149	69.1		146	71.2		101	76.5		396	71.7	0.317
Creation of exclusive spaces for respiratory symptoms outside the UBS (e.g., tents)	130	60.0		109	53.0		80	60.6		318	57.6	0.256
Creation of exclusive spaces for respiratory symptoms within the UBS	126	58.2	<b>2.5</b>	78	37.9	<b>-4.9</b>	82	62.1	<b>2.7</b>	285	51.6	<b>0.000</b>
Availability of oximeters	86	40.0	<b>-3.6</b>	102	50.0	0.2	85	64.4	<b>3.9</b>	274	49.5	<b>0.000</b>
Implementation of a bed with structure for respiratory support in PHC service	31	14.6		28	13.6		9	6.8		68	12.4	0.088
Locations designated for COVID-19 vaccination												
UBS closest to clients' homes	122	56.4	<b>3.3</b>	84	40.9	<b>-2.4</b>	58	43.9	-1.0	264	47.7	<b>0.004</b>
Drive-thru posts	31	14.6	-10	93	45.5	<b>1.9</b>	99	75.0	<b>9.3</b>	224	40.4	<b>0.000</b>
Posts in public places	27	12.7	<b>-7.5</b>	71	34.9	1.5	73	55.3	<b>6.9</b>	172	31.1	<b>0.000</b>
UBS highlighted (specifically separated) for COVID-19 vaccine	47	21.8	<b>-3.3</b>	84	40.9	<b>4.4</b>	34	25.8	-1.2	165	29.8	<b>0.000</b>
There was a need to recruit/replace health professionals to adapt the PHC demand during the pandemic	177		81.9	158		77.1	105		80.2	440	79.7	0.457

Note: Values in bold mean being out of standard against the expected distribution: >1.96 indicates excess occurrence, and <-1.96 means lack of occurrence.

Source: Research "Primary Health Care policy in the context of the pandemic in São Paulo state municipalities".

for PHC in the usual flow (Figure 1), except for care for clients with chronic diseases ( $p=0.024$ ), which was more frequent in municipalities with up to 50 thousand inhabitants; and the activities of the NASF teams ( $p=0.045$ ), which were maintained in municipalities with more than 50 thousand inhabitants.

In general, the activities that tended to be maintained were prenatal care appointments (97.1%), routine vaccination (94.9%), childcare (67%), and ACS actions (88%). On the other hand, the most discontinued during the pandemic were health education groups (74%), family planning (48.6%), and breast cancer screening actions (60%). Team meetings, a vital arrangement for collective work planning, were held in only 41.2% of the municipalities.

The question regarding the impression of managers regarding the performance of their PHC during the pandemic should be mentioned as it confirms that PHC was more relevant for

the care of mild and moderate cases in smaller municipalities (94.4%). Only 77.5% agreed with the statement in intermediate municipalities, and 68.2% did so in large municipalities. Although agreement was high across all strata, this decline as the population increases is noteworthy from a qualitative viewpoint.

## Discussion

Our results indicate that population size is an essential analytical component to advance the understanding of municipalities' responses to the health crisis caused by the COVID-19 pandemic and helps evaluate the implementation of the ESF and other PHC health indicators in the Health Care Network<sup>27,28</sup>.

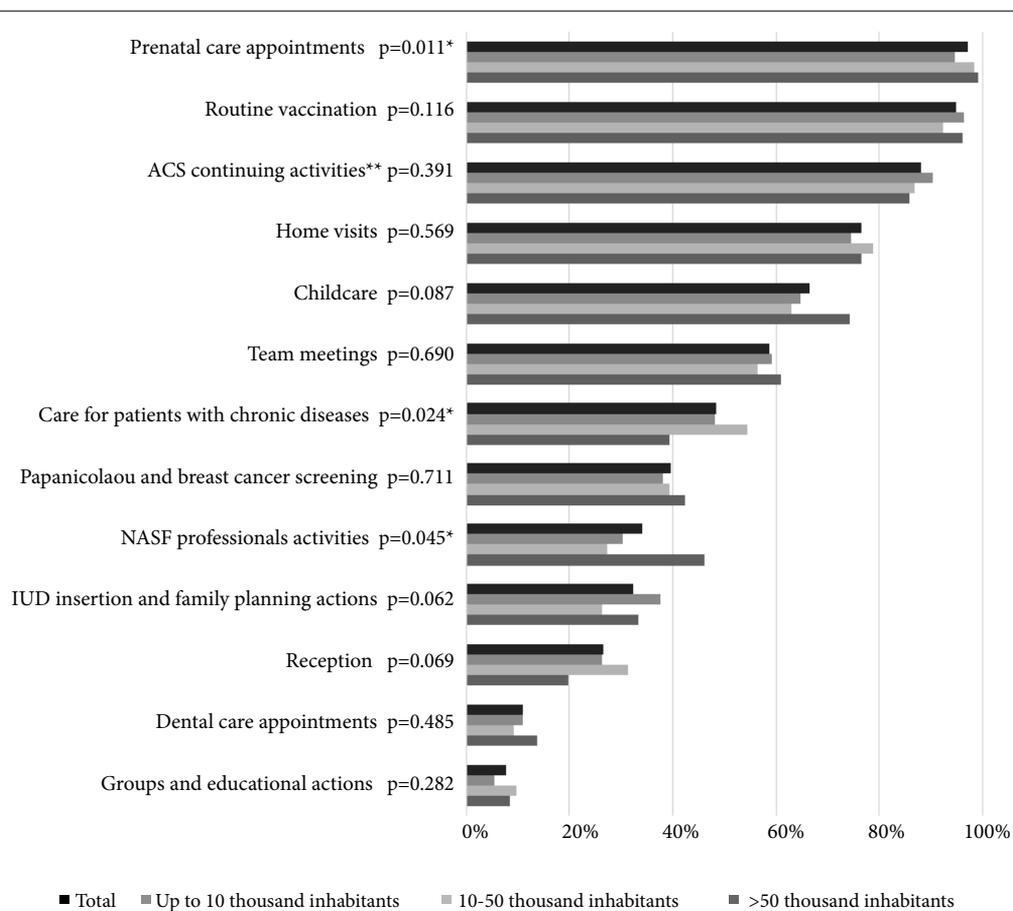
The analysis presented here suggests that small municipalities focus their responses on PHC, maintaining it as the main point of care for

**Table 4.** Distribution of expanded actions to combat the pandemic developed from 2020 to 2021 in municipalities in the state of São Paulo by population size. State of São Paulo, 2022.

	<10 thousand inhabitants			10-50 thousand inhabitants			>50 thousand inhabitants			Total		P-value
	N	%	ZRes	N	%	ZRes	N	%	ZRes	N	%	
Intersectoral actions for socially vulnerable people	153	75.0		155	78.3		106	85.5		414	78.7	0.079
Partnerships with movements/ community organizations/ third sector/NGOs/civil society organizations	86	42.2	<b>-4.0</b>	109	58.3	1.8	79	63.2	<b>2.6</b>	274	53.1	<b>0.000</b>
Actions/adaptations performed at UBS to combat COVID-19												
Educational actions in social facilities in the territory (pharmacies, markets, and other services)	94	43.6		74	36.4		43	32.6		212	38.3	0.097
Identification of groups at highest risk of clinical complications from COVID-19	71	32.7		74	36.4		59	44.7		204	36.9	0.083
Identification of the most socially vulnerable groups	59	27.3	0.2	40	19.7	<b>-3.0</b>	49	37.1	<b>3.1</b>	148	26.8	<b>0.002</b>
Recommendation for UBS to monitor all patients diagnosed with COVID-19 in home isolation (quarantine)	200	92.6	<b>4.6</b>	161	80.1	-1.7	98	74.2	<b>-3.3</b>	459	83.6	<b>0.000</b>
Provided some social support	165	82.5		143	74.1		98	8.0		406	79.0	0.102
Structured initiative for psychological support	122	58.7	<b>-4.5</b>	143	73.0	1.2	107	83.6	<b>3.9</b>	372	69.9	<b>0.000</b>

Note: Values in bold mean being out of standard against the expected distribution: >1.96 indicates excess occurrence, and <-1.96 means lack of occurrence.

Source: Research "Primary Health Care policy in the context of the pandemic in São Paulo state municipalities".



**Figure 1.** Percentage of municipalities that continued PHC care actions from 2020 to 2021 in the state of São Paulo by population size. State of São Paulo, 2022.

Note: \* $p < 0.05$ ; \*\*Only municipalities that reported having ACS responded.

Source: Authors.

symptomatic respiratory and vaccination clients and encouraging their teams to be responsible for monitoring these clients. On the other hand, large municipalities decentralized care and vaccination, establishing additional points for these services in the network, approaching the perspective proposed by the Ministry of Health but was widely criticized in the literature due to the underutilization of PHC, with the consequent loss of community care for health surveillance<sup>5,6,8,10,11</sup>.

However, the responses from intermediate-sized municipalities, between 10 and 50 thousand inhabitants, stand out in this setting. These municipalities fluctuated between the two trends and aimed to separate COVID-19 care into other structures. However, as there were fewer devices for referencing the regional care network, this

possibly stumbled on hurdles in this care compartmentalization.

According to Table 2, the smaller the municipality, the less access to other support services, including SAMU, the main responsible for health transport<sup>8</sup>. In these intermediate municipalities, the construction of COVID-19 Centers had additional financial resources<sup>33</sup>. It is a widely used option, which significantly changes the flow of clients, reassigning them to these reference centers. The decision to rely on these specialized centers fragmented care and harmed client enrollment and the longitudinality provided in PHC<sup>34</sup>.

A guidance to conduct actions in the territory, such as intersectoral and psychosocial care initiatives (Table 4), was observed in the three population size strata. However, actions related

to health education in the territory and mapping clinically or socially vulnerable clients were hardly performed, especially in intermediate municipalities. The redirected care flow could explain this situation precisely, bypassing the UBS.

Besides the observation that care continuity was widely recommended for already traditional programmatic actions in PHC, these data suggest that municipalities in São Paulo struggled to strengthen PHC during the pandemic<sup>5,6</sup>, along the lines recommended in the literature<sup>3,4,10</sup>, which can result in the deterioration of other health conditions, detrimental to the resumption of care after the advancement of vaccination against COVID-19. Although caution is necessary for associating preserving activities such as prenatal care, childcare, and vaccination with the guarantee of longitudinality and comprehensiveness, given the existence of other relevant factors in this analysis, they point to apparent PHC appreciation.

In the universe studied, PHC appreciation was seen mainly in smaller municipalities. In these municipalities, we identified characteristics such as centralized COVID-19 care in PHC, less difficulty in recruiting general practitioners or community family doctors to work in PHC, maintenance of ACS work more frequently than in other population sizes, and broader measures for action in the territory and care continuity actions.

Although we could not ascertain whether the strengthening of PHC, with the characteristics presented above regarding small municipalities, results from the organization of services in the ESF model, we should underscore the specificities of the PHC structure available in the smallest municipalities in the State of São Paulo. As demonstrated, in municipalities with up to 10 thousand inhabitants, exclusive SF units and traditional units have lower participation than other strata, with structures combined in different arrangements gaining prominence, such as traditional units with SF elements and integrated into the UPA. Such characteristics may mean limited structuring of PHC along the lines of the ESF guidelines, given the reality of small municipalities in the State of São Paulo. On the other hand, they may also represent the pragmatic need to complement family health structures with devices from other care levels to depend less on the health region's apparatus, which is close to what was envisioned as a possibility of adaptation<sup>28</sup>, as long as managers guarantee work processes adapted to expanded care.

In any case, the specificity identified in small municipalities signals that attention should be paid when considering the extent of these changes, given the evidence of superior performance of the ESF model regarding expanded care<sup>14,23</sup> and the importance of financial incentives for consolidating comprehensive PHC in the smallest municipalities in São Paulo<sup>35</sup>.

The data presented point to the impossibility of having unique models and the risk of idealizing models without adequately reading the socio-historical context of public policies and health technologies<sup>23</sup>. It underscores the importance of discussing the difficulty of implementing more comprehensive care models, with PHC focused on expanded care and regulated networks, as the ESF intended in its origins.

The construction of broader care models is known to depend on the intentional organization of different stakeholders, the discussion and practice accumulated by municipalities, the ability to negotiate in the face of different interests, financing and management capacity, and confronting initiatives that insist on reorienting PHC towards a focused, selective, and strictly biomedical model. This debate also applies to the ESF<sup>14,36</sup>. However, given what we observed regarding the municipalities of São Paulo and their organization of PHC in the face of COVID-19, we believe it is urgent to deepen discussions beyond promoting a single PHC model or the justification of the fragmented and substandard care from the dualistic lens of the availability or lack of ESF. The study confirmed that municipalities have a pronounced role in building responses to critical events and modulating the care model, adapting the arrangements and models foreseen in the literature or the policy itself, which can mean potential or limitation, depending on each case<sup>37</sup>.

Therefore, understanding the care model and PHC must consider whether such movements occur from the perspective of a singularized ESF to preserve locoregional characteristics without harming the alignment of the expanded care assumptions and the territorial needs or whether, on the contrary, they refer to a degraded clinic and the territorial care dimension<sup>25</sup>.

## Conclusion

When analyzing how São Paulo municipalities of different population sizes organized the fight against the COVID-19 pandemic, we underscore managers' concern in proposing changes and in-

crements in the work process to articulate PHC with other network points but with a predominance of biomedical actions.

We did not observe a radical formulation of responses that could be considered comprehensive PHC or expanded care in any strata since intersectoral, community care, and territorial perspective actions were still retracted compared to individual medical-curative actions. Smaller municipalities showed a slightly better performance in the community-territorial dimension and had greater centrality in PHC.

We could identify the relevance of population sizes as indicators for inequalities within the SUS. In the same way, we consider that the centrality and strengthening of PHC in the network are still challenges. The analysis of the PHC care model by size, considering the expanded care paradigm, showed a persistent need to build alternative

models, given the current biomedical care hegemony, which resulted in fragmented care during the pandemic.

The present paper endorses building a permanent culture of rapprochement between PHC teams and the territory and constantly investing in expanded care by establishing bonds of trust and social and health responsibility between the teams and the population to weave lessons for future settings. It also highlights the need for measures to overcome the fragmented biomedical model.

Finally, it would be appropriate to conduct additional studies on the sensitive topics raised in the present study, such as care for post-COVID sequelae, creation of networks, expanded care, and the effects of the albeit momentary interruption of the PHC flow.

## Collaborations

MMO Viana contributed to the study design, objective, analysis, discussion, and article writing. LS Duarte contributed to data analysis, development of methodology, results, discussion of the article, and approval of the version to be published. MML Escuder contributed to developing methodology, statistics, and results. MT Garcia contributed to the article's discussion, data analysis, preparation of figures, and final review, with translation into English. M Fernandez contributed to the research design, data analysis, discussion of the article, and approval of the version to be published. MIS Costa contributed to the discussion about the model. MVF Neves contributed to formatting, organization of references, and final article review.

## References

1. Aguilar-Guerra TL, Reed G. Mobilizing Primary Health Care: Cuba's Powerful Weapon against Covid-19. *MEDICC Rev* 2020; 22(2):53-57.
2. World Health Organization (WHO). Fundo das Nações Unidas para Infância (Unicef). *Community-based health care, including outreach and campaigns, in the context of the Covid-19 pandemic. Interim guidance* [Internet]. Geneva; 2020 [cited 2023 mar 13]. Available from: [https://www.who.int/publications/i/item/WHO-2019-nCoV-Comm\\_health\\_care-2020.1](https://www.who.int/publications/i/item/WHO-2019-nCoV-Comm_health_care-2020.1).
3. Massuda A, Malik AM, Vecina Neto G, Tasca R, Ferreira Junior WC. A resiliência do Sistema Único de Saúde frente à COVID-19. *Cad EBAPE BR* 2021; 19(Supl.):735-744.
4. Vitória AM, Campos GWS. *Só com APS forte o sistema pode ser capaz de achatar a curva de crescimento da pandemia e garantir suficiência de leitos UTI* [Internet]. São Paulo: COSEMSSP; 2020 [acessado 2020 jul 20]. Disponível em: <http://www.cosemssp.org.br/wp-content/uploads/2020/04/So-APS-forte-para-ter-leitos-UTI-.pdf>.
5. Sarti TD, Lazarini WS, Fontenelle LF, Almeida APSC. Qual o papel da Atenção Primária à Saúde diante da pandemia provocada pela COVID-19? *Epidemiol Serv Saude* 2020; 29(2):e2020166.
6. Souza CDF, Gois-Santos VT, Correia DS, Martins-Filho PR, Santos VS. The need to strengthen Primary Health Care in Brazil in the context of the Covid-19 pandemic. *Braz Oral Res* 2020; 34:e47.
7. Conselho de Secretários Municipais de Saúde do Estado de São Paulo (COSEMSSP). Nota Técnica COSEMS/SP nº 09/2020. *Manejo clínico e tratamento farmacológico de casos leves e moderados da Covid-19 - evidências científicas para orientar a tomada de decisão*. São Paulo: COSEMS; 2020.
8. Daumas RP, Silva GA, Tasca R, Leite IC, Brasil P, Greco DB, Graboys V, Campos GWS. O papel da Atenção Primária na rede de atenção à saúde no Brasil: limites e possibilidades no enfrentamento da Covid-19. *Cad Saude Publica* 2020; 36(6):e00104120.
9. Conselho de Secretários Municipais de Saúde (COSEMS). Secretaria de Estado da Saúde (SESSP). *Organização das ações na atenção primária à saúde no contexto da Covid-19* [Internet]. 2020 [acessado 2020 jul 20]. Disponível em: <https://www.cosemssp.org.br/noticias/organizacao-das-acoes-na-atencao-primaria-a-saude-no-contexto-da-covid-19/>.
10. Engstrom E, Melo E, Giovanella L, Mendes A, Graboys V, Mendonça MHM. *Recomendações para a organização da atenção primária à saúde no SUS no enfrentamento da Covid-19*. Rio de Janeiro: Observatório Covid-19, Fiocruz; 2020.
11. Fernandez M, Fernandes LMM, Massuda A. A Atenção Primária à Saúde na pandemia da COVID-19: uma análise dos planos de resposta à crise sanitária no Brasil. *Rev Bras Med Fam Comunidade* 2022; 17(44):3336.
12. Fernandes LMM, Pacheco RA, Fernandez M. How a Primary Health Care Clinic in Brazil faces coronavirus treatment within a vulnerable community: the experience of the Morro da Conceição area in Recife. *NEJM Catal Innov Care Deliv* 2020; 1:5.

13. Fernandez MV, Castro DM, Fernandes LMM, Alves IC. Reorganizar para avançar: a experiência da Atenção Primária à Saúde de Nova Lima/MG no enfrentamento da pandemia da Covid-19. *APS Rev* 2020; 2(2):114-121.
14. Giovanella L, Mendonça MHM, Buss PM, Fleury S, Gadelha CAG, Galvão LAC, Santos RF. De Alma-Ata a Astana. Atenção primária à saúde e sistemas universais de saúde: compromisso indissociável e direito humano fundamental. *Cad Saude Publica* 2019; 35(3):e00012219.
15. Brasil. Ministério da Saúde (MS). *Política Nacional de Atenção Básica. Série E. Legislação em Saúde* [Internet]. 2012 [acessado 2020 jul 12]. Disponível em: <http://189.28.128.100/dab/docs/publicacoes/geral/pnab.pdf>.
16. Fernandez MV, Lotta G, Correa M. Desafios para a Atenção Primária à Saúde no Brasil: uma análise do trabalho das agentes comunitárias de saúde durante a pandemia de Covid-19. *Trab Educ Saude* 2021; 19:e00321153.
17. Brasil. Ministério da Saúde (MS). Secretaria de Atenção Primária à Saúde. *Protocolo de Manejo Clínico do Coronavírus (Covid-19) na Atenção Primária à Saúde*. Brasília: MS; 2020.
18. Ferigato S, Fernandez M, Amorim M, Ambrogi I, Fernandes LMM, Pacheco R. The Brazilian Government's mistakes in responding to the COVID-19 pandemic. *Lancet* 2020; 396(10263):1636.
19. Lotta G, Wenham C, Nunes J, Pimenta DN. Community health workers reveal Covid-19 disaster in Brazil. *Lancet* 2020; 396:365-366.
20. Fernandez M, Lotta G. How Community Health Workers are facing COVID-19 Pandemic in Brazil: Personal Feelings, Access to Resources and Working Process. *Arch Fam Med Gen Pract* 2020; 5(1):115-122.
21. Melo EA, Mendonça MHM, Oliveira JR, Andrade GCL. Mudanças na Política Nacional de Atenção Básica: entre retrocessos e desafios. *Saude Debate* 2018; 42(n. esp. 1):38-51.
22. Morosini MVGC, Fonseca AFL, Lima LD. Política Nacional de Atenção Básica 2017: retrocessos e riscos para o Sistema Único de Saúde. *Saude Debate* 2018; 42(116):11-24.
23. Ayres RCM, Santos L. *Ricardo Bruno: Saúde, sociedade & história*. São Paulo: Hucitec; 2017.
24. Soratto J, Pires DEP, Dornelles S, Lorenzetti J. Family health strategy: a technological innovation in health. *Texto Contexto Enferm* 2015; 24(2):584-592.
25. Andrade LOM, Barreto ICHC, Bezerra RC. Atenção Primária à Saúde e Estratégia Saúde da Família. In: Campos GWS, organizador. *Tratado de Saúde Coletiva*. São Paulo: Hucitec; 2012. p. 783-835.
26. Castro ALB, Andrade CLT, Machado CV, Lima LD. Condições socioeconômicas, oferta de médicos e internações por condições sensíveis à atenção primária em grandes municípios do Brasil. *Cad Saude Publica* 2015; 31(11):2353-2366.
27. Tanaka OY. Avaliação da Atenção Básica em Saúde: uma nova proposta. *Saude Soc* 2011; 20(4):927-934.
28. Campos GW. SUS: o que e como fazer? *Cien Saude Colet* 2018; 23(6):1707-1714.
29. E-Gestor AB. *Informação e Gestão da Atenção Básica* [Internet]. 2020 [acessado 2020 set 5]. Disponível em: <https://egestorab.saude.gov.br>.
30. Pereira JCR. *Análise de dados quantitativos: estratégias metodológicas para as ciências da saúde, humanas e sociais*. São Paulo: Edusp; 2004.
31. Conselho Nacional de Saúde (CONEP). Resolução nº 510, de 7 de abril de 2016. Dispõe sobre as normas aplicáveis a pesquisas em Ciências Humanas e Sociais. *Diário Oficial da União* 2016; 24 maio.
32. Conselho Nacional de Saúde (CONEP). *Carta Circular nº 1/2021-CONEP/SECNS/MS*. Brasília, CONEP; 2021.
33. Brasil Ministério da Saúde (MS). Portaria nº 1.445, de 29 de maio de 2020. Institui os Centros de Atendimento para Enfrentamento à Covid-19, em caráter excepcional e temporário, considerando o cenário emergencial de saúde pública de importância internacional decorrente do coronavírus (Covid-19). *Diário Oficial da União* 2020; 1 jun.
34. Frota AC, Barreto ICHC, Carvalho ALB, Ouverney ALM, Andrade LOM, Machado NMS. Vínculo longitudinal da Estratégia Saúde da Família na linha de frente da pandemia da Covid-19. *Saude Debate* 2022; 46(n. esp. 1):131-151.
35. Duarte LS, Viana MMO, Scalco N, Garcia MT, Felipe LV. Incentivos financeiros para mudança de modelo na atenção básica dos municípios paulistas. *Saude Soc* 2023; 32(1):e210401pt.
36. Magalhães Júnior HM, Pinto HA. Primary Care as network ordinator and care coordinator: is it still utopia? *Divulg Saude Debate* 2014; 51:14-29.
37. Tasca R, Carrera MBM, Malik AM, Schiesari LMC, Bigoni A, Costa CF, Massuda A. Gerenciando o SUS no nível municipal ante a Covid-19: uma análise preliminar. *Saude Debate* 2022; 46(n. esp. 1):15-32.

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