




Reorganization of primary health care for universal surveillance and containment of COVID-19

doi: 10.5123/S1679-49742020000400015

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The COVID-19 pandemic has established an extremely serious epidemiological situation, owing to the high transmissibility of its etiological agent, SARS-CoV-2, and the severity of part of the cases,¹ which require high complexity health care. In the face of this scenario, health authorities have turned to expanding the hospital network, including intensive therapy units (ITU), which has indeed been necessary; but without ensuring universal surveillance for new case detection and, above all, maximization of control actions aimed at reducing transmission of the virus.

One of the crucial mechanisms for containing any epidemic is the setting up of special surveillance strategies with the objective of detecting the largest possible number of cases and contacts, followed by actions that reduce the risk of the disease spreading, particularly when the agent is transmitted through respiratory droplets, as in the case of SARS-CoV-2. COVID-19 is a community disease which spreads very rapidly, manifests itself similarly to other flu-like syndromes (FLS) and is difficult to contain.

As highlighted by Sarti et al. (2020),² Brazil's vast Primary Health Care (PHC) network has been contributing to the achievement of important results in improving the population's health conditions and can be one of the mainstays of the actions needed to contain the problem. Moving in this direction indicated by those authors, it

is our understanding that it is fundamental to develop specific strategies for articulating PHC with Epidemiological Surveillance (ES) teams in the municipalities, because we consider that this is the route capable of promoting universal case and contact detection and control that the COVID-19 pandemic is demanding.

Although it has some limitations, the Brazilian communicable diseases surveillance system is well structured, works in a capillary manner in all the country's municipalities, alongside the National Health System (SUS) network of services, developing systematically and, generally, timely surveillance and control actions appropriate for each of the communicable diseases of Public Health concern.³ In addition, the surveillance system investigates and initiates actions when unprecedented events occur, such as the case of the microcephaly/congenital Zika virus syndrome epidemic. As part of their work routine, PHC teams undertake certain ES actions. However, integration between PHC teams and ES teams is incipient with regard to in-field epidemiological investigations in the territories where they provide care, identify and control contacts, such as happens with tuberculosis and leprosy surveillance. In the vast majority of municipalities, these activities are strictly the responsibility of ES. One of the large and recognized

*All the authors are participants of the CoVida Network - *Rede CoVida: Ciência, Informação e Solidariedade* (<https://covid19br.org/>).

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challenges facing SUS is that of strengthening articulation between PHC and ES at all SUS levels.⁴

Below we will approach some limits to implementing COVID-19 ES in Brazil, and will present suggestions for enhancing surveillance actions to be developed within PHC.

Limits of COVID-19 ES in Brazil

It is a fact that this pandemic has put all of Brazilian society in a state of alert, increasing FLS case detection sensitivity. SUS already had a Flu-Like Syndrome Sentinel Surveillance System and a Severe Acute Respiratory Syndrome Information System. These have been kept and a further new surveillance tool has also been put in place, namely e-SUS ES, which comprises a specific module for recording COVID-19 notifications,⁵ which could contribute to monitoring the spread of this disease.

These three systems have been of the greatest importance for accompanying trends and recording routine information on each disease. However, the need also exists to employ up to date and more advanced technologies,^{6,7} which enable epidemiological analyses to be performed in each territory and cross-checking with other available data sources (web, social networks), among other innovations.⁸

Still with regard to notifications, the 'Guide to Epidemiological Surveillance – Coronavirus Disease 2019 Public Health Emergency of National Concern', published on April 3rd 2020, has brought comprehensive case definitions, including suspected cases and cases confirmed by laboratory tests and by clinical-epidemiological criteria.⁵ Notwithstanding, official statistics have only been taking laboratory-confirmed cases into account. This procedure has contributed to lack of knowledge about the extent of the epidemic, given the country's lack of available capacity to perform these laboratory tests. On top of this there are difficulties (shortage of resources and risk of contamination) in carrying out epidemiological investigation, case by case, to identify contacts of confirmed cases who have developed FLS and/or severe acute respiratory syndrome (SARS), which can be confirmed by clinical-epidemiological criteria.

With regard to the data collected by the surveillance system, some ES attributes are not being achieved,

compromising their quality, such as: *representativeness*, given that only cases whose samples have been collected and processed are included in the case count (and not random samples); *magnitude* of the epidemic, because only cases cared for in health services that have sample collection structure are taken into consideration; and *sensitivity*, given that positivity of the RT-PCR (reverse transcription polymerase chain reaction) molecular test using oropharyngeal secretion samples depends on the time of collection, calculated with effect from onset of symptoms.^{9,10} In addition, there is the fact of this being passive detection in a scenario of very low SARS-CoV-2 testing, apart from not including individuals with difficulty in accessing services or not using them because they only have mild signs and symptoms of infection.

The persistent scarcity and inadequate distribution of SUS resources compromises the possibilities of success in addressing the epidemic. Additional resources are needed, which should not be limited to reinforcing personnel and equipment at the specialized and hospital care levels, given the valuable contribution that ES-PHC articulation can offer to COVID-19 surveillance, control and prevention.

As there are still no vaccines capable of impeding the natural course of SARS-CoV-2 circulation, nor medication to hold back the clinical evolution of COVID-19 and, as this disease is transmitted from person to person, personal hygiene and social distancing are the only measures available to stem its transmission. However, the effectiveness of these measures has been limited,¹¹ principally because of difficulties in their being implemented with the necessary rigor and amplitude, which demand changes in individual and collective habits. As such, SUS must prepare itself to live with SARS-CoV-2 in the forthcoming years.

In this scenario, it is fundamental that, in articulation with ES, the PHC teams (i) investigate possible suspected cases, (ii) trace and screen contacts, (iii) implement control actions, (iv) monitor mild cases and (v) refer them when necessary to more complex care in a timely and early manner. Moreover, changes recommended in some behaviors, necessary for greater adhesion to social isolation measures, are more likely to be successful when guided by someone close to the community, such as the PHC teams, especially community health agents, who work daily in the territories, closer and more closely linked to communities and their families.

The necessary surveillance of probable cases

Insufficiency of diagnostic testing, together with the absence of a clear policy defining priorities for its use, results in lack of knowledge of virus circulation flows. Surveillance therefore needs to be more agile and effective in all territories where there are COVID-19 cases, putting action strategies into practice in the sense of reducing occurrence of new infections in communities. One such strategy, capable of contributing to increased ES sensitivity, consists of tracing all contacts. To this end, all cases must be considered to be possible transmitters of SARS-CoV-2, in accordance with Health Ministry case definitions^{12,13} and those of other Public Health organizations.^{14,15} Cases confirmed by clinical-epidemiological criteria and probable cases must also be considered. This initiative will enable the scaling up of COVID-19 protection and control measures, with active PHC participation.

Organization of surveillance actions in PHC

Interventions in PHC that articulate ES measures in the context of the COVID-19 pandemic¹⁶ are summarized as follows:

- a) measures aimed at reducing the risk of the epidemic expanding, such as (i) informing about hygiene measures, (ii) active participation in case notification, (iii) indicating and monitoring contact household isolation and quarantine, and (iv) encouraging adherence to social distancing.
- b) providing care to health service users with mild COVID-19, who must be adequately monitored by the PHC teams, whereby health service managers and workers should adopt alternatives, depending on local reality, which should be promptly made known to the population, such as, for example, (i) separating individuals suspected of having COVID-19 from other service users (distinct physical spaces or flows/times; external tents) and (ii) transferral to hospital care (appropriate health service transport); and
- c) social support for frailer and more vulnerable groups (the elderly, people with other diseases, etc.) who are (i) isolated, with no social support network and/or with limited mobility on their own, for them to get products essential for their everyday lives, and who (ii) need support, protection and security; so

that it is fundamental for PHC teams to expand articulation and partnerships with governmental and non-governmental organizations and social movements, in order to minimize the problems arising from these vulnerabilities.

It must also be highlighted that in addition to ensuring that routine PHC actions are maintained, in view of the highly contagious nature of SARS-CoV-2 the urgency of health centers adopting precaution and protection measures cannot be neglected, so that their personnel neither become infected nor become sources of contamination. It is therefore imperative to incorporate innovations into the work process and not expose the population and health workers to risk of SARS-CoV-2 infection, as this would make the situation even worse. As such, we recommend that health teams interact with health service users and the community, using digital tools for communicating, monitoring and analyzing the situation in the territory,^{7,17,18} providing an online service (messaging applications, telephone, etc.), ensuring that actions are provided in a safe manner, without discontinuity and possible worsening of the health condition of individuals in treatment. Digital tools ensure that routine actions can be maintained, such as the surveillance actions proposed here, in accordance with their specificities. It is our understanding that, in view of the opportunity, digital tools should form the basis of a new *modus operandi* by ES and PHC in communities, in addition to favoring greater social participation and optimization of use of social facilities. It is important for there to be articulation with the other levels of health care, such as teleconsultations with specialists and with Family Health Support Cores, as a rearguard for the actions carried out.

Finally, all these initiatives require the good will of all three levels of SUS management in incorporating them into their respective pandemic Contingency Plans, with a view to allocating resources for concrete measures to be adopted, in particular increasing the number of teams, qualifying health personnel, access to equipment and internet access for health centers and the population – above all for more vulnerable social groups.

The pandemic is expanding, and the inability to detect and trace contacts are obstacles to its containment and consequent safe flexibilization of social isolation. Within this context, we propose that articulation between Epidemiological Surveillance and Primary Health Care

be made a national SUS directive. This proposal assumes agreement between the different levels of health service management involved and specific funding, so that ES-PHC articulation becomes a reality in all the country's municipalities. Successful experiences of this nature are already underway in Brazil^{19,20} and are examples to be considered. What is important, at this time of severe health crisis, is to ensure technical and operational support, provision of resources and logistical support needed to implement and develop an effective process for containing community transmission of SARS-CoV-2.


Authors' contributions

Teixeira MG, Medina MG, Costa MCN, Aquino R contributed to the concept and design of the article and drafted the first version. Barral-Netto M and Carreiro R took part in the discussions about the contents and proposals and contributed to enhancing the manuscript. All the authors critically reviewed that article, have approved the final version and declare themselves to be responsible for all aspects thereof, guaranteeing its integrity.

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