Opinion article

COVID-19 health surveillance in Brazil: investigation of contacts by primary health care as a community protection strategy

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Introduction

On January 30th 2020 the World Health Organization (WHO) declared COVID-19 to be a Public Health Emergency of International Concern – the Organization's highest level of alert –, and, on March 11th 2020, declared it to be a pandemic.[1]

Measures were adopted in Brazil before the country's first case was confirmed. On January 22nd the Ministry of Health brought into action its Emergency Operations Center, coordinated by the Ministry's Health Surveillance Secretariat. At that initial moment, its actions sought to promote information and communication to the population, as well as training for health workers and expansion of coverage afforded by the Brazilian National Health System (SUS), especially with regard to tertiary care, increasing intensive therapy unit (ITU) beds, respirators, personal protective equipment, among other measures.[2] On March 20th 2020 the Ministry of Health declared community transmission of COVID-19 and thus began adoption of non-pharmaceutical measures to reduce its transmission, such as isolation and social distancing, with the aim of avoiding gatherings of people.[3]

Several studies focus physical distancing as a strategy for controlling transmission of the novel coronavirus (SARS-CoV-2) that causes COVID-19, in view of its complex dynamics and its still unknown epidemiological characteristics. A study conducted in Taiwan showed that vertical isolation of symptomatic people and people belonging to risk groups is not such an effective measure for reducing SARS-CoV-2 transmission, and that the need exists for more generalized measures, i.e. for society as a whole, such as horizontal isolation, as a social distancing measure.[4] With the lockdown in Wuhan Province, China adopted extreme social distancing measures. Other countries took similar measures: lockdown of entire cities or communities, restriction of international and domestic travel, border control with screening for symptoms (health barriers), quarantine, among other measures.[4] In Scotland, household isolation was effective in avoiding admission to health services. With the reduction in infected people in health services, the transmission chain was broken.[5]

According to WHO recommendations, in order for the pandemic to be considered under control, the indicator of the speed of its reproduction or transmission (Rt) needs to be below 1. The Brazilian states have not yet reached this level. Another concern is the spread of the disease to the interior regions of the country, these being places where hospital bed infrastructure is sparse, as the majority are concentrated in large urban conurbations.[6]

This context makes it fundamental to rationalize resources and structure care flows which provide for case follow-up within the territories responsible for them and prioritize care and continuous follow-up. As such, this article proposes a flowchart to strategically assist the organization of the territory-based primary health care (PHC) service network, scaling up interventions by making the population's everyday life the central point of care in relation to COVID-19.

Development of the flowchart

A proposal for assessment of contacts of people with tuberculosis (TB) was published in 2016.[7] The proposal resulted in a territorial surveillance flowchart, the main objective of which was to break the TB transmission chain.

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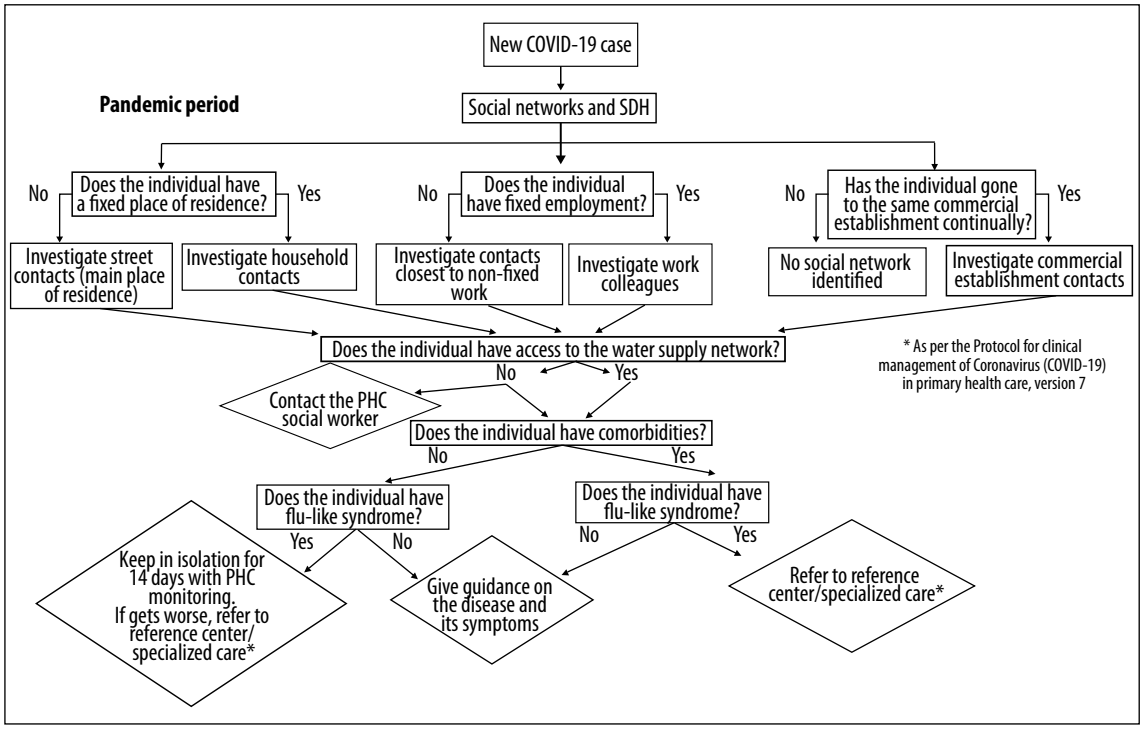
Initially, an average distance of approximately 2,000 meters from the same spatial cluster was considered, i.e. an individual with TB and with a given genotype would be at a distance of approximately 2,000 meters from another individual with the same genotype.[8] In other words, transmission is presumed between people with the same microorganism genetic material. As such, it was inferred that this would be the minimum distance for one person not to be able to transmit the disease to another.

Tuberculosis is a disease the transmission mechanisms of which have been described, for which treatment is accessible and a vaccine for preventing severe cases in children is available. This is not the case with regard to COVID-19.[9] In addition, as we are in the midst of the coronavirus epidemic, the speed of its transmission is much faster than that of TB. Nevertheless, it is important to emphasize that even with all the information that exists about TB, community transmission of it still persists.

Although all the SARS-CoV-2 transmission mechanisms are not known and although there are points of disagreement about the role played by asymptomatic people, as the mechanisms of person-to-person transmission are extremely relevant for the propagation of both diseases, it can be postulated, based on surveillance, that case tracing by PHC, the organization of the community itself and isolation of symptomatic and oligosymptomatic people can play a crucial role in interrupting or reducing the SARS-CoV-2 transmission chain. As such, early identification, especially in vulnerable communities, can influence the speed of transmission.[10,11]

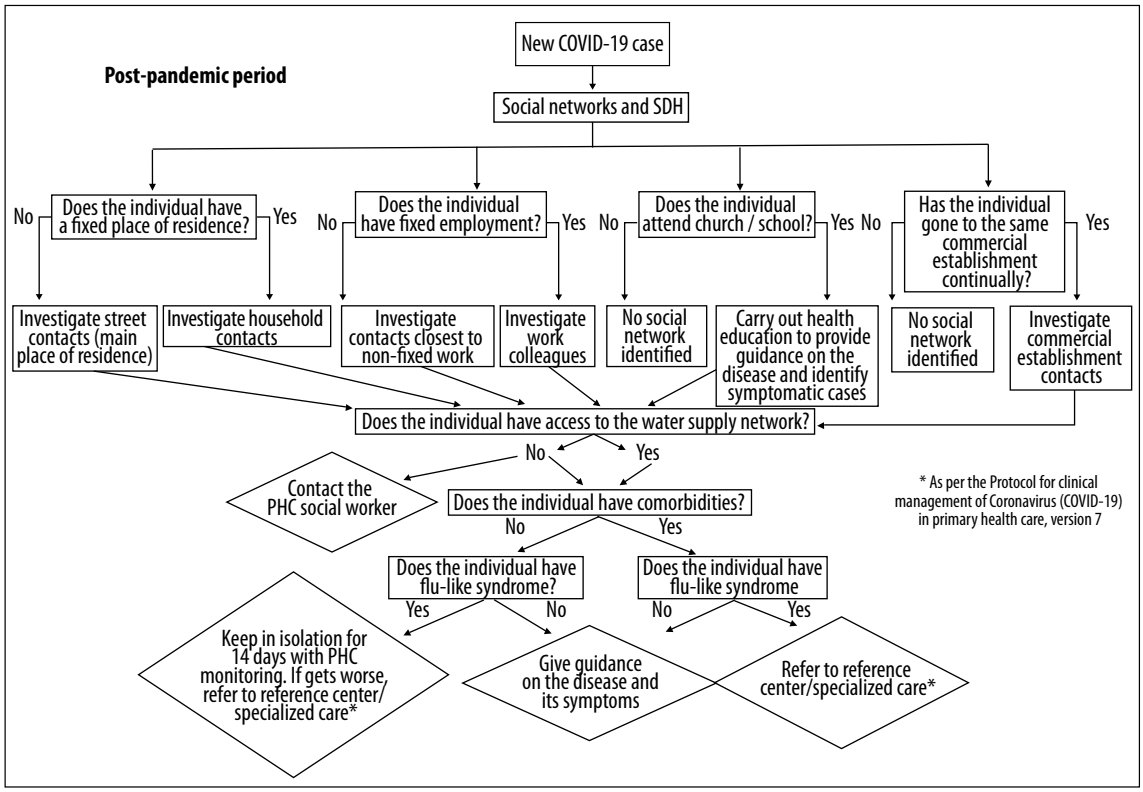
It would therefore be possible to infer that the space in which SARS-CoV-2 is propagated would also be in spatially delimited social circles. Based on this assumption, the proposal mentioned above was adapted to COVID-19 case tracing in a wider territory, as demonstrated in flowcharts 1 and 2. The term territory as used here, as affirmed by Milton Santos,[12] is defined as the interdependent locus of the form of production and socioeconomic formation where people's social relations and networks occur and is not restricted just to geographic space.

The overriding objective of this form of territory-based surveillance would be to map individual-individual and individual-space social network interaction with COVID-19, considering certain social determinants of health (SDH). It also proposes the carrying out of active tracing of new cases of the disease so as to keep suspected



PHC: Primary health care.
SDH: Social determinants of health.

Figure 1 – Territorial surveillance flowchart for tracing COVID-19 case contacts in the pandemic period



APS: Atenção primária em saúde.
DSS: Determinantes sociais da saúde.

Figure 2 – Territorial surveillance flowchart for tracing COVID-19 case contacts in the post-pandemic period

cases in isolation and control the disease's transmission chain. In the flowchart, 2,000 meters is considered as being the distance in which potential transmission can occur between two people in a household, at work or during leisure activities.

The COVID-19 territorial surveillance flowchart addresses the tracing of flu-like syndrome (FLS) cases, based on identification of an individual's social relations and SDH. According to the Ministry of Health, FLS is defined as: "An individual with an acute respiratory clinical picture, characterized by febrile sensation or fever, even if reported, accompanied by coughing OR sore throat OR runny nose OR breathing difficulty."[13]

Two flowchart proposals are presented, one for the pandemic period and the other for the post-pandemic period, assuming that in the latter period it will also be necessary to trace cases and contacts.

Flowchart application

The flowchart should be used in PHC when assessing a suspected COVID-19 case. PHC is one of the entry points to SUS and should reorganize the flow of service users, taking on health service protagonism.[14] In this pandemic period, COVID-19 cases are attended to by doctors and nurses, but in the post-pandemic period community health agents, who are the link between the health center and the community,[15] can work on identification of possible contacts.

In the pandemic period (Figure 1), the flowchart provides guidance on identification of each contact of a person diagnosed as having COVID-19, observation of social networks and SDHs and, based on this, seeking places where the individual coexists with other people, with the aim of identifying new FLS cases. However, before clinical investigation, an important item of SDHs is taken into account, namely access to the water supply network. If the individual does not have access to the network, the case is referred to the social services to verify possibilities of help. Clinical assessment begins by looking for presence of comorbidities and FLS. If FLS are present, ideally diagnostic assessment for COVID-19 should be conducted with testing and isolation for 14 days, if there are no comorbidities, or referral to a reference service.

Individuals who do not have FLS should receive guidance on the disease and its symptoms.

In this way, a person with COVID-19 sets the contact control strategy in motion, which is based on looking for FLS in different social environments, such as at home, at work, in shelters, among others. If the person lives alone, does not have fixed employment or does not practice leisure activities with other people, there is no one to be specifically investigated (Figure 1).

If contacts have had or report fever (≥37.8ºC), dyspnea, myalgia and fatigue, and upper respiratory symptoms,[13] their symptoms should be observed and they should be kept in isolation. Monitoring of these people should take place until they are fit to come out of isolation and if they get worse they should be advised to go to the nearest referral or urgency/emergency health service. In crowded places in which a person diagnosed as having COVID-19 may have interacted with a lot of people, health education actions should be carried with contacts with the aim of avoiding greater propagation of the disease and alerting as to symptoms.

Identification of prior diseases among cases and their contacts can be considered to be a guidance measure in relation to severity markers. Health professionals should ask about any prior diseases, such as diabetes, arterial hypertension, cancer, and other recent communicable diseases, such as dengue and Chikungunya, among others. At this time, any information about recent or chronic illnesses is relevant and should be taken into consideration and reported to the health team.

In the post-pandemic period, a person's social networks tend to increase, when places that were closed during the pandemic begin to reopen, such as churches and schools. A collective health education strategy is therefore proposed, providing information on signs and symptoms, as well as guidance on health care, in order to identify the needs of each family member. Clinical investigation follows the same steps as those contained in the individual flowchart, in accordance with Ministry of Health recommendations (Figure 2).

Final considerations

The flowcharts presented for active tracing of symptomatic COVID-19 cases in PHC can be useful for preventing the disease transmission chain from being maintained and thus reduce the demand for ITU beds, principally in places where there are few hospital beds. As such, identifying people with FLS, performing diagnostic tests and promoting isolation early can stop transmission to individuals belonging to groups at greater risk of developing severe forms of COVID-19.

Health education, conducted using language, information and guidance easily understandable by the population, is highly necessary in order to avoid the negative effect of fake news in circulation on the internet, in addition to reaching a larger number of people who, once they have received guidance, can become spreaders of quality information.[16]

Accompanying cases considered to be milder and monitoring their evolution, with adequate referral, when necessary, to the network of clinical and social services, can ensure more immediate health care for symptomatic individuals and create conditions for isolation of those in vulnerable situations, in accordance with WHO recommendations.[13]

The flowcharts presented here can and should be adapted to concomitant surveillance of other endemic and epidemic diseases in Brazil, since COVID-19 comes on top of the diseases already in existence in the country, stressing the need to reorganize health services, given that the pandemic has altered PHC's way of working.

In conclusion, we believe that the actions proposed can provide significant advancement with COVID-19 health surveillance, given that this approach takes into consideration transmission in the community and in its social spaces, with contact tracing and adequate health guidance and education. As such, implementing the flowcharts can assist PHC organization, providing benefits for affected people and for the community as a whole.

Authors' contributions

Maciel ELN contributed to the concept of the study. Maciel ELN and Sales CMM contributed to designing and writing the study. Da Silva AI contributed with relevant critical reviewing of the intellectual content of the manuscript. All the authors have approved the final version of the manuscript and are responsible for all aspects thereof, including the guarantee of its accuracy and integrity.

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