

Protocol For Clinical Pharmacists To Perform And Detect SARS-Cov-2 Tests In Pharmacies

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Abstract

WHO declared Covid-19 pandemic in early 2020 and while rapid tests kits (RTKs) were developed quickly, the spread of the SARS-CoV-2 virus continues to be a concern. In this scenario as a tentative of mass testing and prevent the collapse in the health system some countries decided to use the community pharmacist for testing. Unfortunately, despite the public's faith in these practitioners, there is no specific guide material for them, so they had to learn through their own day-to-day experiences and nearly a year after there is still no clear guidance material for them. This protocol was created throughout adaptations from guide materials for laboratories from Brazil, India, UK, USA, Canada, Australia, WHO and personal experiences. Differences in RTKs conducted, how to screen for the most suitable examination, a proper anamnesis, how to perform the tests correctively, biosafety are all new concepts placed in this protocol as these are the key concerns that these experts have when they were assigned this new and vital job. During the pandemic pharmacists are showing their major importance in combating this world public health crises as performing tests, be first and last place where population seeks for guidance and treatment and now in vaccination.

Keywords: protocol, pharmacies, clinical pharmacy, rapid test kit, COVID-19, SARS-Cov-2, pandemic.

1. Introduction

On the 30th January 2020 the World Health Organization (WHO) declared that the virus found in China on the 7th January 2020 became a case of Public Health Emergency of International Concern (PHEIC) (1).

With this happening, officially the COVID-19 pandemic was starting in the world and is still a disease that worries scientists, the World Health Organization, politicians and the health workers. Until today, in 2021, the world is trying to understand this virus cycle, how it spreads and possible effective treatments. The only mystery solved is that there is already evidence that permits to say how this virus can be transmitted (2).

Pharmacists are often in a circle for health support as they are the first health professional that the population looks for attendance and also the last one as they are seen as providers for the patients at post-hospitalization when coming back home. In this position, these community pharmacists are located in drugstore and play an important role in the health care system as they can help in patient counselling and therefore to down the number of people that look for hospitalization (3).

This pharmaceutical support is important as they may act with clinical practice having the capacity to facilitate to the patient timely access to medications, indicate when to look for better and specified care reducing hospitalization (4).

They are also responsible in providing medication education, to monitor symptoms associated to medication toxicology or adverse effects, to guide the patient, for pharmacotherapy consultation, drug interaction analyses, medication and vaccine application. They are also able to monitor some diseases as they can measure blood pressure, do diabetics tests, help to monitor the patient health care (4).

Coronavirus is a new disease that began spreading at the end of 2019 and quickly became recognized across the world as the COVID-19 pandemic. This is an infectious disease that can cause a variety of symptoms, but the most concerning is when it progresses and causes coronavirus 2 respiratory syndrome (SARS-CoV-2) (5).

Health care were overburdened and under threat, with no systems in place to cope with the unknown virus and disease. Under this situation all health care professionals had to be called and an effective coordinated pharmacy support system became very important (6).

According to the International Pharmaceutical Federation (2020) the pharmaceutical support starts to provide an essential support in how to operate the private and public health system (7). Nonetheless, pharmacies are playing an increasingly important role and taking on additional roles, and their pharmacy teams are not only assisting in the distribution of drugs and providing community support in the fight against the pandemic, but they are also assisting in the early detection of COVID-19 (8).

In Brazil, India and even in some other countries, the pharmacists that are present in pharmacies all over the country beyond guide the patients in regards to their symptoms and medication they also started to perform

COVID-19 antigen and serological tests helping to combat this global crisis and becoming front line healthcare workers (9). The tests performed in Brazil has to receive an emergency authorization from their National Health Surveillance Agency (ANVISA) before it uses (10).

However, it still not has a protocol to be followed by community and clinical pharmacists in making COVID-19 tests not even in Brazil where it is done in regular pharmacies. Community pharmacists all over the world are playing an important role as they are responsible to provide COVID-19 screening tests, medication and now also vaccination in some parts of the world (11).

Protocol can be defined as an important document which describes a clinical practice or trial with its background, rationale, objectives, design, methodology, statistical considerations and organization of clinical research project. The goal of a protocol is to explain in a better way the features of a certain procedure where it is possible to show a better efficacy and safety describing risk benefits and giving better directions for professionals to continue to conduct the specified procedure clearly (12).

This protocol was created with the aim to be a guide material for clinical pharmacists all over the world to use as a specific support material to perform SARS-CoV-2 tests in pharmacies as it was adapted to the community pharmaceutical team reality. Despite some official guide materials rereleased the on-field COVID-19 experiences are still a challenge due to the lack of experience with the situation that goes beyond the scope of any already written official guidelines or recommendations.

Thinking about this and based in the difficulties lived by this pharmaceutical time, this protocol aims to clarify the mainly problems identified since the beginning of the SARS-CoV-2 tests in pharmacies and to describe the different pharmaceutical care services delivered by pharmacists during the COVID-19 pandemic.

The focus is to clarify important questions and hesitation by the pharmaceutical team giving them more strength when attending a patient with a possible diagnosis of covid. The main doubts and a step by step are clarified in this protocol as the main differences between the RTKs and how to choose the correct test to patient history, how to perform a proper screening, anamnesis, correct use of the protective equipment and biosafety before, during and after performing the RTKs. It is important to emphasize that there is no specific procedure or instructions for conducting COVID-19 tests in pharmacies, and all that these clinical pharmacists do in the pharmacies is based in laboratory/hospital official guide material.

The main objective of this paper is be able to develop a Pharmacy Emergency Preparedness and Response (PEPR) Framework based in the integration of official materials with the day-by-day experience lived by a community clinical pharmaceutical team. Therefore, this material will serve as recommendations tool for

others pharmacy professionals around the world. With this advantage the pharmacist' will be able to do a faster and more effective work as it will be possible to follow this protocol as a pathway to be used while performing the SARS-CoV-2 tests.

We hope this proposed protocol can serve as a reference tool and gives direction and full support to clinical pharmacists bringing integration within public health efforts (such as the COVID-19 pandemic), nevertheless, will be enhanced the recognition of pharmacists' skills, roles in the society and contributions impact in public health as they are considered integral members of the interprofessional healthcare team.

2. Materials and Methods

This protocol was created by the clinical pharmacist and the pharmaceutical team of a private pharmacy in Brazil that started to perform SARS-CoV-2 antigen and serological rapid test based on their experience during performing the test. Adaptation of some official guidance material were also was used as:

- i. World Health Organization (WHO): Laboratory biosafety guidance related to coronavirus disease 2019 (COVID-19): interim guidance;
- ii. The Guidance for Pharmacists and Pharmacy Technicians in Community Pharmacies during the COVID-19 Response by the Center for Disease Control and Prevention (CDC);
- iii. The Policy for Coronavirus Disease-2019 Tests During the Public Health Emergency (Revised): Immediately in Effect Guidance for Clinical Laboratories, Commercial Manufacturers, and Food and Drug Administration Staff by the Food and Drug Administration (FDA);
- iv. Canadian Ministry of Health: COVID-19 operational requirements;
- v. United States Pharmacopeial Convention (USP): response to shortage of garb and personal protective equipment (PPE) for sterile compounding during COVID-19 pandemic;
- vi. United Kingdom COVID-19 Guidance for maintaining services within health and care settings: infection prevention and control (IPC) recommendations;
- vii. The Coronavirus Disease 2019 (COVID-19) CDNA National guidelines for public health units by the Australia Ministry of Health;
- viii. Coronavirus 2019-nCoV Outbreak: Information and Interim Guidelines for Pharmacists and the Pharmacy Workforce by The International Pharmaceutical Federation (FIP);

ix. Brazilian National Health Surveillance Agency (ANVISA): Technical note No. 96/2020 already actualized for nº 6/2021: Guidance for pharmacies during the pandemic period of COVID-19;

x. Brazilian National Health Surveillance Agency (ANVISA): Technical note 97/2020: Guidance for using rapid tests for the Covid-19 in private pharmacies during the Covid-19 pandemic period.

3. Results

3.1 Differences Between the SARS-CoV-2 rapid tests

Pharmacies are performing two types of SARS-CoV-2 rapid tests: the first one is the antigen known as viral tests that detected current infection. The second type of testing is the antibody one known as serological test as analyse the antibodies IgM/IgG so it is responsible to detect previous infection or in which part of the virus cycle the person may be (13).

Antibody testing is an Immune-based exam responsible to detect the human IgM and/or IgG antibodies. It may be considered a complementary exam as is recommend only when the patient has approximately 10 days or more after the beginning of symptoms (14).

Its significance is from the possibility of detecting previous SARS-CoV-2 infections, as well as the ability to identify the evolving aspects of the patient's humoral responses by displaying the IgM/IgG levels, which can indicate which period of infection the patient is in and thus point out some treatment options (14).

In the antibodies tests the health team is able to accompany the patient immunity evolution. When the test is performed the pharmacist can say which antibody the patient presents. If in the exam only IgM is showed it means that the patient is still in the acute infectious stage and also has more than 10 days of the virus circulating in his body. At the same time if it is noticed IgM and IgG at the same time, it means that the patient may be in the final cycle representing the middle stage of infection (15).

The middle stage of infection means that the same time the patient organism already presents the immunity immunoglobulin IgG it also has the IgM and can be transmitting the virus yet this median serum conversion normally happens between day 12 and day 14 (16).

The last stage of the disease is represented by the IgG which means that the patient already has antibodies against the infection and it may already be considered cured reaching the plateau approximately by the day 21 when becomes persisted (16).

3.2 Before and during the performance of SARS-CoV-2 tests

The pharmacies that start to offer the rapid tests kits (RTKs) has the obligation that the pharmaceutical team first made an on-line training course provided by the pharmaceutical companies of the RTKs. In these on-line courses only was explained how the tests work, separately, with their principles, how to perform and read the final result but not the meaning. It is important to emphasizes that these on-line courses are direct for laboratories too that does not have some reality that pharmacies.

Other important information is that the differences between the RTKs and the non-rapid tests, how to do the procedure step by step until the read of the result, possible mistakes and how to perform a correct screening, to know which test to indicate, follow by an anamnesis to put in the text result is not thought in these on-line courses. This leaves the pharmaceutical team with many queries and no directive material for them by the lacking of correct protocols and guides for them to have a better work support to perform SARS-CoV-2 tests in pharmacies.

As biosafety is really important while all the procedure process is explained on those on-line courses a brief and basic explanation about what were the mainly personal protective equipment (PPE) is given. Mainly information about how it is placed and taken out avoiding contamination, how the pharmaceutical clinic room should be cleaned and the separation of waste must be done is also informed initially.

After that, the pharmaceutical team are supposedly trained to perform all kind of rapid tests. It is important to point out that only pharmacists are authorized to manipulate these tests, to do the screening, anamnesis and to release the test result to the patient.

To avoid the exposure to the virus the pharmacists follow standard laboratory practice at the pharmacy that consists in the use of masks preference N95, FFP2 or surgical one, disposable gloves, lab coat or gown, medical cap, eye protection devices and face shield.

After a test, independent or positive or negative, all materials should be disposed at the contamination waste with cautions and only the N95 mask can be re-used for a short period. The hands should be washed before putting the PPE and after its removal.

According to the Center for Disease Control and Prevention (CDC), for N95 and FFP2 be reutilized and at the same time to preserve their protective function it should be cleaned frequently as indicated by the manufacturer (16). However, for surgical masks the Food and Drug Administration (FDA) is strongly against to recycle after removed, as it is already advised to use only once (18).

Masks should not be used by more than one person, therefore it must not to be shared. In case of reuse the mask should contain the identification of the person to not occur the risk of using the mask of another person, and should be placed in a small, labelled, paper bag and placed in a clean demarked place where only who make the test has permission to access. All these recommendations are to reduce the possibility of more contamination, to avoid self-contamination person should also wash the hands and use 70% alcohol before and after manipulate the mask (19).

The proper way to use the mask is covering the nose and mouth, non-essential conversation should be avoided and the reuse of face masks and other PPE materials is not recommended because of the possible non visible to the eye contaminated material ass drops of blood, respiratory secretions, tissue, and other biological material (20).It is important to highlighted that has a major risk at the reuse of masks mainly for a long period because of the danger in introduce microbial bioburden material in the environment and from the person its uses (21).

Community pharmacist performing COVID-19 rapid test on pharmacies should also follow the laboratory professionals use of PPE as all specimens collected for in vitro diagnostic testing should be considered potentially infectious with SARS-CoV-2. Therefore, all the time must adhere rigorously to standard precautions to minimize their own contamination or their time (22).

No clear evidence has emerged on the efficacy of a disposable surgical cap to prevent SARS-CoV-2 infection, and this recommendation is only provided by the First Affiliated Hospital, Zhejiang University School of Medicine (FAHZU) (23).

As the tests started to be offered in the pharmacies the patient can schedule it by phone, on-line or personally as only with appointment made before it is done as a way to avoid agglomeration. The time between the appointment patients for the tests are of 45 minutes, considering as this time should be enough to do all the procedures.

The patient arriving, screening, payment, put on the PPE's, perform the test, anamneses, delivery the result, put out the PPE's and clean the room are the tasks done by the in-charge pharmacist. Patients are consulted one by the time and should have more than 2 years-old, therefore, children should always be accompanied by a responsible person or family member with all the important documents.

When the patient arrives, he/she identifies itself for a person that works at the pharmacy where it checks if is the person which is scheduled in the system. If negative it is explained that only scheduled people are able to

do the test in that time and that is not possible to add anybody, nevertheless it is checked the next day and hour available and scheduled if allowed.

The schedule system is very important to avoid agglomeration as is only permitted 1 patient each 45 minutes and is asked to come alone, except children that comes only with one responsible person. Also puts a limitation in the amount of people circulating at the pharmacy and possible contamination of others in case of positive (24).

If the person detected is the one who has been scheduled, they are both guided to the pharmaceutical clinical room at the same time. If a screening has been completed with the pharmacist, the specialist will begin asking questions of the patients in order to determine the best test for that particular case. Making inquiries of the patient is important for pharmacists to be able to choose the most reliable examination.

As a result, screening is critical because it necessitates clinical and epidemiological proof; the questions asked will assemble the person's historical case, and the laboratory can recommend a test based on either previous clinical evidence (prior to the past 14 days) OR previous epidemiological evidence (25).

The questions are whether the person is feeling something and how long the symptoms have been present, as well as whether any medication has been taken to relieve an alert symptom, such as paracetamol or ibuprofen, which decreases fever (26).

Screening is very important as is in this moment that the patient say his history and reasons of doing the test. It even can be pointed out as the most important procedure as it guides the clinical pharmacist in choose the appropriate test. The screening triage can be defined as a prior examination to a person in order to detect potential health disorders based in evidence (27).

In the case of COVID-19 the lack of symptoms becomes harder to know which test to perform consequently the right diagnosis. The choice of the test is based in how many days the person has symptoms or had contact with somebody positive or with suspect (28).

The screening is really significant but it cannot be used as the only resource for a diagnosis. The differences between the tests are explained and the pharmacists suggest which test is the best to be chosen for the moment. Also, the patient is questioned if there is any medical prescription already asking for a specific test.

After the test is chosen the patient follows to pay for it as the pharmacist start to get prepared first washing the hands appropriately and it puts on the disposable apron and cap, one surgical mask plus one N95 mask

on top, face shield and gloves. Then the rapid test that was chosen on the triage is separated and the patient is asked to get in at the clinical room and seat.

The washing of the hands is recommended for all health care providers that perform or not the COVID-19 rapid tests. The population and workers should perform frequent hand hygiene with soap and water or alcohol minimum 70% for at least 15seconds (29).

For the frontline health workers that perform the rapid tests the hand hygiene is extremely important and must be done before putting on personal protective equipment (PPE) for specimen collection and before and after taking off PPE (30).

The tests are performed according to the on-line course given and the step by step informed by the manual that came together with the RTKs. Aflowchart of procedure in drugstores for carrying out the COVID-19 test in Brazil is shown in figure 1.

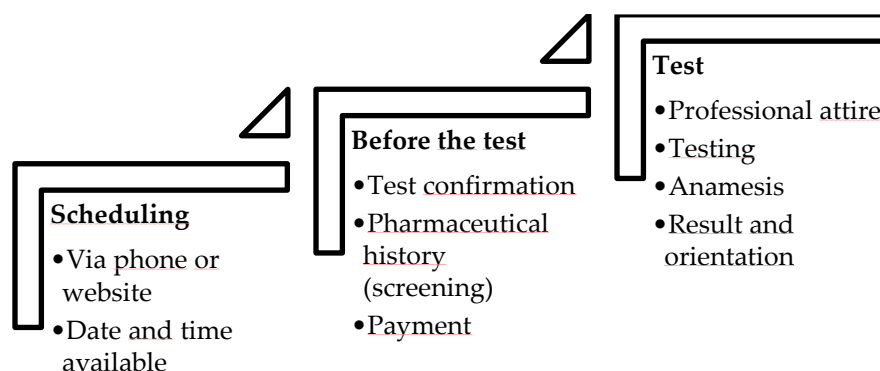


Figure 1. Flowchart of procedure in drugstores for carrying out the COVID-19 test in Brazil.

3.3 After performing the SARS-CoV-2 tests

While the test is running after been collect the pharmacist start an interview with the patient, the anamnesis. This is the moment when it is asked about the clinical history of the person as if has diabetes, any respiratory problem, autoimmune or chronic kidney disease, if it takes any medicine regularly, had contact with somebody that it known it was positive or suspicious for COVID-19 and if its health worker or in the security area.

Anamnesis is defined as the moment where the doctor, in this case the pharmacist, will take the medical story of the patience, it will be listening about the patient's history of disease already known. The patient will also answer the questions that are been asked by the doctor that has medical relevance for the

moment. It is important that the questions are concise, clear and focused into the patient making the feeling understood while the information is obtained (31).

Personal information is also questioned at this moment as contact features as a confirmation of the information already passed that will be included in the final test report. Questioning the patient about chronic diseases such as immunosuppressive is important as it can help in the early diagnosis and adequate treatment taking his medical history in count.

All that told for the pharmacist in the screening, as symptoms and the approximate date that it started, and also, in the anamnesis is placed in a form together with the test result and then delivered to the patient.

This is also a crucial moment of the process mainly because people can have all kind of reactions depending the result. At this time pharmaceutical care becomes really important as is the pharmacist that will give the follow procedures (9).

In positive cases it is recommended for the person to make the quarantine, do not share common domestic tools as plates, fork and knife. Depending of the symptoms the person is direct to medical care and is asked for the person to contact everybody he was close in the last days.

In case the person lives with other people is asked to try to be in a part of the house alone trying to have minimal contact among the others and the use of mask inside the house during the quarantine period by everybody.

It is also recommended to monitor the sick person symptoms regularly and by any evidence of getting worse the patient should be direct to hospital care. It is needed to ensure that the sick person rests, eats correctly and stays hydrated. Is advised to wash their hands, clean and disinfect the place where the person is and the surfaces that it got contact frequently.

The use of any kind of medicines as treatments is only given by doctors and should be accompanied as there is no medical official protocols. When the person cough or sneeze, it should preferably cover the mouth with a flexed elbow or a disposable tissue and those should be washed and/or discarded immediately after use.

Is also advised that the waste from the ill person should be packed in different and closed bags before disposal. The pharmaceutical team inform too that is recommended that the sick person and/or the

family stays in isolation for at least 10 days and if possible, to do it again a new exam to verify if still has the active virus and still can transmit. In the case the person cannot do it again a 15 days self-isolation is then suggested.

All the recommendations made by the pharmaceutical team is according to official guidance materials mainly if patience which the SARS-CoV-2 rapid test was performed is detected positive or in suspicious cases (25, 32-34).

The pharmaceutical team has the power to conduce the positive patience to the hospital team for better clinical assessment and examination and the pharmacy should provide alcohol-based hand sanitizer inside the clinical pharmaceutical room and outside (30).

It is important to refer that all the garbage used before, during and after the tests are dismissed at separate garbage one for common use with black plastic bag and the other for biological material with extremely resistant white plastic bag with infecting substance symbol (35).

Needles used to perform the serological tests are also disposable in specified appropriated garbage with infecting substance symbol. All these types of carrying are important to prevent contamination from the pharmaceutical team, who works at the pharmacy and the population (36).

The possible contaminated waste is collected only by an authorized company as hospital garbage and only the pharmacist is able to make the manipulate of these types of garbage and with an Inspection Certificate for the Transport of Hazardous Products (CIPP). The garbage is sent for proper treatment, which can be through incineration (burned at high temperatures) or sterilization in its own enclaves (24).

The use of the glove in one side and after use the other side procedure known as double gloving, is extremely not recommended in the routine of clinical care nor in positive neither in negative cases of COVID-19. Aprons should be changed between patients mainly if was positive and/or after completing a procedure or task therefore is not recommend that the person circulates outside the procedure place with the apron. In case of leaving the place to go to the bathroom and/or eating and to drink water all the EPP's should be changed (37).

Avoid touching your face or any part of your body that is not proper covered as your neck and to use any accessories such as piercings, rings, earrings and even false eyelashes. Cover the foot/shoe is not required or recommended for when preforming COVID-19 tests (38).

All cases are reported to the government website of control COVID- 19 by the pharmacist. The only people that have access to this website are health works prior registries and that perform COVID-19 tests. All patience dados are placed in this website and serves for statistic and to accompany if the curve is getting higher or lower impacting in prevention management.

The pharmacist then asks if the patient has any concerns, informs him that his details will be stored on the government's COVID-19 website as required by law, and requests that he sign a copy of his test result report. This copy, signed by the patient who remains in the pharmacy with the pharmaceutical staff, contains the patient's consent and understanding of what will be done.

After the patient leaves the pharmacist removes all the protection clothes, wash the hands properly and clean the room surfaces as chairs, door, computer, keyboard, mouse and the floor with 70% alcohol, or/and freshly diluted household bleach (including products containing sodium hypochlorite). These procedures are the one preconized by WHO in their laboratory biosafety guidance related to coronavirus disease 2019 (COVID-19): interim guidance (33). In the figure 2 we are able to observe as it works the pharmacist's routine before and after performing SARS-CoV-2 test.



Figure 2. Pharmacist's routine before and after performing SARS-CoV-2 test.

4. Discussion

Globally, until 05 June 2021 there have been 172,242,495 confirmed cases of COVID-19, including 3,709,397 deaths received by WHO from national authorities (39).

The scientists shown the evidence that COVID-19 is transmitter from one person to another and this happens according to close contact between people. This occurs as when a person is close to another as it speaks, sneeze or coughs it is released the virus by respiratory droplets (40).

Droplets that were generated by the respiratory system are expelled to the environment and nevertheless can be inhaled by somebody. When these droplets that are in the air are inhaled, they go direct into the lungs and the ones that falls can stay into a superficies where by the human touch contamination can happen. The hand that had contact with the SARS-CoV-2 virus and had not been properly sanitized that take the virus throughout the mouth to the interior body system (41).

Asymptomatic persons are also responsible for the virus transmission been these the ones that we need to be more careful as they don't present apparent symptoms (42). Many factors can be pointed to prevent COVID-19 which includes the use of masks, alcohol at the hands and to clean the places in and out of the house and sanitize the hands always with soap and water (43).

Also, it is important to avoid close contact with infected individuals being separate making isolation during the infected time, approximately 14 days. During this time, avoid travelling to the most affected areas, particularly for the elderly. People aged 65 and up, as well as those with existing medical problems, should be extra cautious since their immune systems are already compromised (44).

Brazil declared COVID-19 a national public health emergency on February 3th of 2020 and when compared to other Latin American countries, the pandemics strikes Brazil by last. The first case registered in Brazil was February 25 of 2020, by a traveller returning to São Paulo from northern Italy (45). Soon after the first declaration the country quickly had several cases confirmed by all its extremes, including in Manaus, where its first case was confirmed on March 13, 2020 which has suffered by an explosive COVID-19 epidemic that became world known and very worrying (46).

At this time, the country has the highest number of COVID-19 cases and deaths in Latin America is Brazil with 16.907.420 infections and 472.531 deaths, registered on June 6, 2021 by Coronavirus Brazil (47). In addition to deaths, unemployment rates increased due to the pandemic, making the Brazilian population vulnerable. Such events made the importance of a strong science and technology system, as well as a single health system that guarantees the universal right to health, remarkable (48). It is possible to observe in

table 1 the top 10 countries that presents more new cases and new deaths by COVID-19 in the world by WHO until June 6,2021 (49).

Country/Area/Territory	New Cases	Total Cases	New Deaths	Total Deaths
India	120,529	28,694,879	3,380	344,082
Brazil	83,391	16,803,472	1,682	472,531
Argentina	32,291	3,884,447	553	79,873
Colombia	28,624	3,488,046	545	90,353
United States of America	18,568	32,997,875	598	590,693
Iran (Islamic Republic of)	9,209	2,954,309	155	80,813
Russian Federation	9,145	5,117,274	399	123,436
Chile	8,245	1,411,346	98	29,696
Malaysia	7,748	603,122	86	3,182
Philippines	7,450	1,255,337	180	180

Table 1: Top 10 countries new cases and new deaths by COVID-19 in the world by WHO until June 6,2021.

The National Health Surveillance Agency (ANVISA) by the resolution RDC No. 377, of April 28, 2020 is the responsible for the authorization of the use of "rapid tests" (immunochromatographic tests) for COVID-19 in pharmacies (32).

Pharmacists in all areas are one of the frontline health care workers, the ones that are working in pharmacies are also diligently important as they provide much-needed services during the pandemic. It has

already been shown that pharmacist-provided services can improve patient results, help to avoid hospitalization and therefore, help to contribute to healthcare savings (50).

Through the chaos installed The International Pharmaceutical Federation (FIP) reunited themselves with the Chinese Pharmaceutical Association (CPA) with a tentative to create a pharmaceutical guidance book containing reliable material on the management of pharmacy procedures. It was possible to publish the “Coronavirus 2019-nCoV Outbreak: Information and Interim Guidelines for Pharmacists and the Pharmacy Workforce” (51).

It was also published The Pharmacy Emergency Preparedness and Response (PEPR) that is a pharmaceutical guide which contains recommendations endeavours that points out the contribution of the pharmacist to a multidisciplinary healthcare team. Within these guides it is possible to use then as pharmaceutical and therefore to create a regional guidance as it is still noticing the lack of specific protocols to be followed by the pharmacists (52).

The Brazilian Society of Hospital Pharmacy applied to these guidance books diverse adaptations as a technique to give recommendation to pharmacists fighting the pandemic respecting the different scenarios and the local demands and resources (53).

Clinical pharmacists are the interface among the population, the government and the healthcare systems due to the easier community access. Their importance is noticed as even during lockdown pharmacies, pharmacist and their team are considered as essential and had to remain opened and still performs SARS-Cov-2 tests normally (11).

Pharmacies are where the population looks for guidance and for the beginning or to continue a medical treatment as they are responsible to dispense the medication and also to maintain continuity of care. These pharmacists are the firsts to disseminate critical information regarding COVID-19 and other diseases, to detect possible signals of the diseases or if the treatment applied are been correct (54).

Therefore, they are closely collaborating with the others health frontline team and government organizations as they also make the COVID-19 antigen and serological tests and notifications giving clinical care and triage of the patients at the pharmacies being the first point of possible infectable person contact with a frontline worker (55).

Pharmaceutical support also is presented as they are engaged in home medication delivery or in going by foot in the homes that are close to the health establishment and in giving education to patients about how it works on telehealth services (56).

It has already been proved that testing mainly in mass is a vital step when it talks about ways of containing the velocity and how coronavirus spread. All kind of tests are able to help in the diagnose of infected people in a community, hence it gives assistance to comprehend the epidemiological status of the disease. Nevertheless, as is been notified in the government control portal the cases this becomes an outbreak tool in helping to create strategies for a possible extra demand in hospitals and intensive care units (57).

Due to the pharmaceutical formation techniques reliable rapid test started to be performed by the pharmacists with the aim of increasing mass testing by the number of COVID-19 daily tests. With this in mind the pharmaceutical team is able to do an early diagnostic by the antigen test or to accompany the virus cycle and immunity by the serological test (58).

The antigen test is important as it makes an early detection of the virus, this type of viral test shows the begging if corona infection therefore when the virus in the most infection form. This test shows the IgM pattern, because if it is positive, the individual can experience a rapid intervention. Since it allows for touch tracing, it is advised that this patient remain in isolation as often as possible and warn others that it has come into contact with (59).

Depending on the symptoms, the patient is referred to a hospital by the pharmacists. In this way, strategies for containing emerging clusters of cases can be created. It's worth noting that people who are infected with SARS-CoV-2 before getting a viral test are already considered contagious and transmitting because signs appear several days after contracting the virus (60).

5. Conclusion

As a form to help the health system not to collapse and try to control coronavirus governments authorized pharmacists that works in pharmacies to perform SARS-CoV-2 rapid tests. As there are no direct material adapt to the reality of clinical pharmacists to use as a reference to know the mainly differences and how to perform the RTKS, correct way of putting and taking out the protective equipment and mainly biosafety procedures for pharmacies. This protocol was written to be used as a guide material for theses professional as is based in official guide materials from WHO, Brazil, Australia, USA, Canada, UK, The International

Pharmaceutical Federation, CDC and FDA and also from the own experience and difficulties that the clinical pharmacists' authors faced when this difficult task was designed for them.

Pharmacists are also responsible to do notifications of all patient that the tests were performed by them independently of the result be positive of negative. The clinical pharmacist has a fundamental role in guiding and monitoring the patient with the use of medications in general, in addition during the coronavirus pandemic their role became bigger as they clarify the patients' questions related to COVID-19. Brazil was one of the first country to authorize the tests in pharmacies. Some countries are still trying to implement rapid tests to be performed in pharmacies too but is not been successful yet due to the lack of an official guidance material for the pharmaceutical team to follow without contamination danger or knowledge of how to perform properly the rapid tests. Many difficulties are still been faced as this is a new role for them and there are a lack of protocols and guide books for these tests to be performed in a pharmacy. Hence to that the pharmaceutical team are making adaptations to laboratory guides and rising knowledge about screening and anamneses.

All this just increases the importance of the clinical pharmacist as they play an important role in the early detection of SARS-COV-2, may direct the patients to hospital only when really need reducing the amount of people in hospital helping with the control of the disease. It is important to note that even in the midst of the pandemic, the pharmaceutical team remains the health professionals with the easiest access to the community, being able to guide and assist in the control of various infectious diseases. As a procedure to help the health system not to collapse and try to control coronavirus governments authorized pharmacists that works in pharmacies to perform COVID-19 tests. Pharmacists are also responsible to do notifications of all patient that the tests were performed by them independently of the result be positive of negative.

The clinical pharmacist has a fundamental role in guiding and monitoring the patient with the use of medications in general, in addition during the coronavirus pandemic their role became bigger as they clarify the patients' questions related to COVID-19. In pharmacies in Brazil, the pharmacist added to them the responsibly to perform COVID-19 rapid tests during their already tough routine. Many difficulties are still been faced as this is a new role for them and there are a lack of protocols and guide books for the test to be perform in a pharmacy. Hence to that the pharmaceutical team are making adaptations to laboratory guides and rising knowledge about screening and anamneses.

All this just increases the importance of the clinical pharmacist as they play an important role in the early detection of SARS-COV-2, may direct the patients to hospital only when really need reducing the amount of people in hospital helping with the control of the disease. It is important to note that even in the

midst of the pandemic, the pharmaceutical team remains the health professionals with the easiest access to the community, being able to guide and assist in the control of various infectious diseases. Such act ensures that Basic Health Units and public / private hospitals do not collapse.

Consequently, the pharmaceutical team and the members trained by them remains as the most accessible healthcare members that the public can interact with been important to the infectious disease control. However due to the lack of authorized medication protocol for these professionals to follow or indicate in the case of positive detect persons they may not give a complete help for these people as they do not have an after SARS-CoV-2 complete guide. Patients with the fear of the disease feels insecure due to the lack of authorized procedures by these professionals, even the ones that are asymptomatic or present lighter symptoms, and still goes into the hospitals looking for medical guidance.

6. Conflicts of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

7. Author Contributions

Methodology and Results: LSR and DCLS; Introduction and Discussion: LSR, DCLS, NS; Conclusion: LSR; writing—original draft preparation LSR, DCLS, NS; English correction: LSR, NS and TJASA; formal analysis, TJASA, writing—review and editing, EBPand VAN; funding acquisition, VAN. All authors have read and agreed to the published version of the manuscript.

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