

The COVID-19 Pandemic Impact on Primary Health Care Services: An Experience from Qatar

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Abstract

Introduction: Health authority in Qatar has developed an emergency action plan to respond to the COVID-19 pandemic with primary health care as the main component of that response. The aim of this study was to measure the impact of COVID 19 on primary health care in Qatar in terms of response, modifications of services, and the introduction of new alternatives.

Methodology: A retrospective data analysis was conducted for all the COVID-19 swabbing activities, the services utilization volume, and utilization of the alternative services (teleconsultations and medication home delivery) across the primary health care centers.

Results: Primary health care allocated testing sites for COVID-19 resulted in conducting 194,381 tests and detected 25,173 confirmed cases with a positivity rate of 12.9%. The overall PHCC services utilization declined with an overall reduction of 50% in April 2020. Family medicine clinics represented 41.9% of the cancelled appointments. Alternative virtual and remote services were provided, telemedicine was introduced, and it made up 50% of the consultation volumes for April 2020. Medications refill home delivery managed to provide a total of 58,949 delivered prescriptions by end of August 2020.

Conclusion: To decrease the risk of infection to the patients and health care workers, Primary health care in Qatar cancelled the appointments for some high-risk population. However, virtual remote services managed to make up for the in-person utilization volume and reflected acceptance in patients' behaviours. Primary health care continued in detecting positive COVID-19 cases among its targeted communities.

Key words: COVID-19, Qatar, Primary care, Service Utilization, Teleconsultation

Introduction

Coronaviruses are RNA viruses that are found in human beings and other mammals (1). Even though most human coronavirus infections result in mild diseases, the world has witnessed two major epidemics in the past two decades from two different betacoronaviruses; severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV). The latter two outbreaks collectively resulted in more than 10,000 cases, with a fatality rate of 10% and 37% for SARS-CoV and MERS-CoV, respectively (2).

In December 2019, China reported to the WHO cases of unknown cause of pneumonia occurring in Wuhan, Hubei (3). The samples of viral genetic sequencing indicated a novel coronavirus (4). The novel virus was named 2019 novel coronavirus (COVID-19) and 75-80% resemblance to SARS-CoV was confirmed (4). As of September 21, 2020, over 30.6 million COVID-19 cases and 950,000 deaths, have been reported globally (5). The COVID-19 outbreak was declared by the WHO as a public health emergency of international concern and the WHO put in place a series of temporary recommendations (6). With no availability for specific antiviral therapy, efforts continue to develop antivirals and vaccine. Early indications suggest that the primary reservoir for the virus are bats, given the close similarity to bat coronavirus (7), while the efforts to identify the zoonotic of the virus continue, the public health measures for managing the outbreak rely on the existing preparedness national and regional capacities to prevent, detect, and respond (8).

Countries have been enhancing preparedness through the implementation and regular assessment of their national capacities to mitigate the effect of public health emergencies, including the emergence of a novel pathogen (9,10). WHO highlighted the importance of primary health care as an essential foundation for the global response to COVID-19. The main functions of primary care in the COVID-19 response include: diagnose and manage potential cases, reduce the risk of transmission of infection to contacts and health-care workers, maintain delivery of essential health services, and strengthen risk communication (11).

In March 2020, Qatar started reporting increased numbers of COVID-19 positive cases. At that stage, national restrictions were put in place. The Ministry of Public Health in Qatar has developed an emergency action plan to respond to the outbreak of COVID-19 with the Primary Health Care Corporation (PHCC) as the main component of that response. As of September 7, 2020, a total of 120,348 cases and 205 deaths had been reported in Qatar (12).]

Primary Health Care Corporation (PHCC), the main primary care provider in Qatar is serving 1.4 million individuals throughout a network of 27 primary health care centers covering all three main regions in the country. The services range from preventive services e.g. cancer screening, immunization, lifestyle counselling to therapeutic services for long-term conditions, antenatal,

and urgent care for adults and children. In addition to that, PHCC provides general dental services, pharmacy, and laboratory services.

PHCC responded rapidly to the pandemic by opening the first COVID-19 centre for testing and holding in March 2020 and suspending all non-essential services and maintained only urgent services and walk-in clinics as operational. Laboratory, pharmacy, diagnostics were all operational to support walk-in patients. As the epidemic continued, PHCC started to open more centers for testing and initiated new alternative services to respond to the needs of its target population.

The COVID-19 pandemic has heavily impacted how primary health care services have been delivered. This impact has positive and negative sides for the services and patients. To decrease the risk of infection to the patients and health care workers, Primary Health Care Corporation (PHCC) in Qatar had to cancel the booked appointments for some high-risk population e.g. NCD and antenatal visits, and the preventive visits e.g. screening and wellness. At the same time, PHCC replaced the in-person consultations with telemedicine consultations. The pandemic affected the patients' behaviour due to either adherence to the recommendations to stay at home, or their perceived risk of infection.

The aim of this review is to understand and document the impact of COVID 19 on Primary Health Care Corporation (PHCC) in Qatar in terms of PHCC response, modifications of services and clinical pathways, and the introduction of new alternative services.

Methodology

A retrospective data analysis was conducted for all the COVID-19 swabbing activities between the 14th of March and 31st of August 2020 from the 4 PHCC COVID-19 health centers and the other 23 health centers. The data was reported daily via the health intelligence system at PHCC. Positivity rates among the screened patients were established.

A retrospective data analysis was implemented as well for all the services utilization volume between the 1st of January 2018 and the 31st of August 2020. The overall volume of the utilization of the services was presented to show the trends during the aforementioned period and was compared with the overall utilization volume prior to the COVID-19 outbreak.

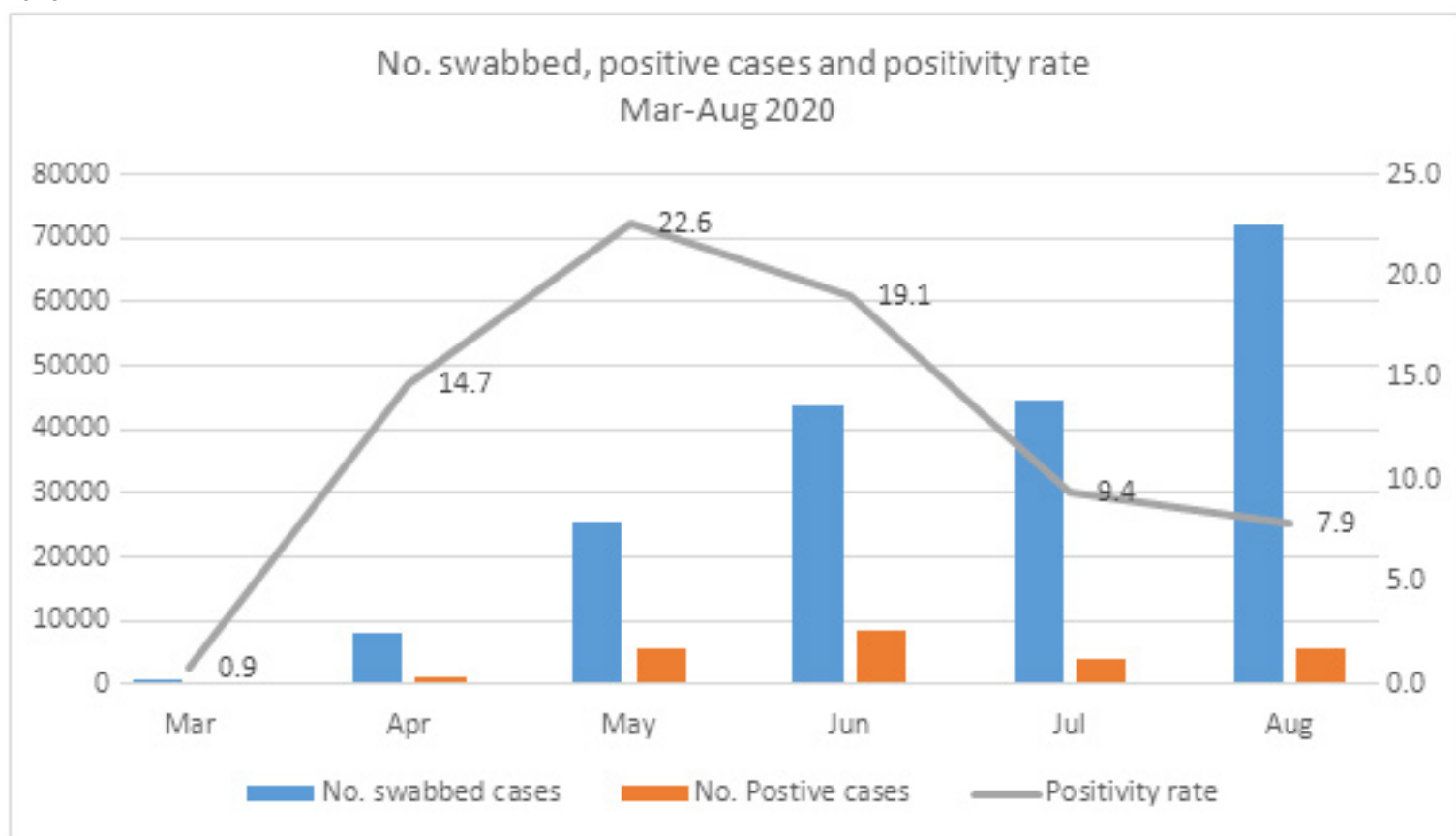
The volume of the newly introduced services during the PHCC COVID-19 response phase (virtual consultation and the medication home delivery) between the 14th of March and the 31st of August 2020 was calculated and presented per month. The cancelled appointments were extracted daily between the 1st of March and the 31st of August 2020 from the PHCC health intelligence system and were classified per service type and presented on a monthly basis. The study was approved by the PHCC research committee.

Results

1. Primary Health Care Corporation response to COVID-19

At the beginning of March 2020 when the COVID-19 cases started rising in Qatar, the PHCC designated four health centers as exclusive COVID-19 testing centres. In addition, one testing room at least was allocated within all other remaining health centers. Starting from June, four drive-through testing stations in health centers were used for community testing. These facilities helped in testing 194,381 individuals and detecting 25,173 confirmed cases as of 31st of August 2020, with the positivity rate of 12.9%. Figure 1 shows that the highest positivity rate (22.6%) was in May, and the highest testing volume was in August with 71,390 swabs.

Figure 1: Number of monthly PHCC swabbed and positive cases between the 14th of March and the 31st of August 2020



2. PHCC clinical pathways modification of services due to COVID-19

In mid-March 2020, PHCC cancelled all non-urgent appointments. Only the urgent services and walk-in clinics remained operational with the laboratory, pharmacy and all diagnostics being operational to support the walk-in services. The latter resulted in cancelling a total of 122,205 scheduled appointments by the end of August 2020. Table 1 shows that family medicine clinics (41.9%) and dental clinics (26.2%) had the highest amount of cancelled appointments.

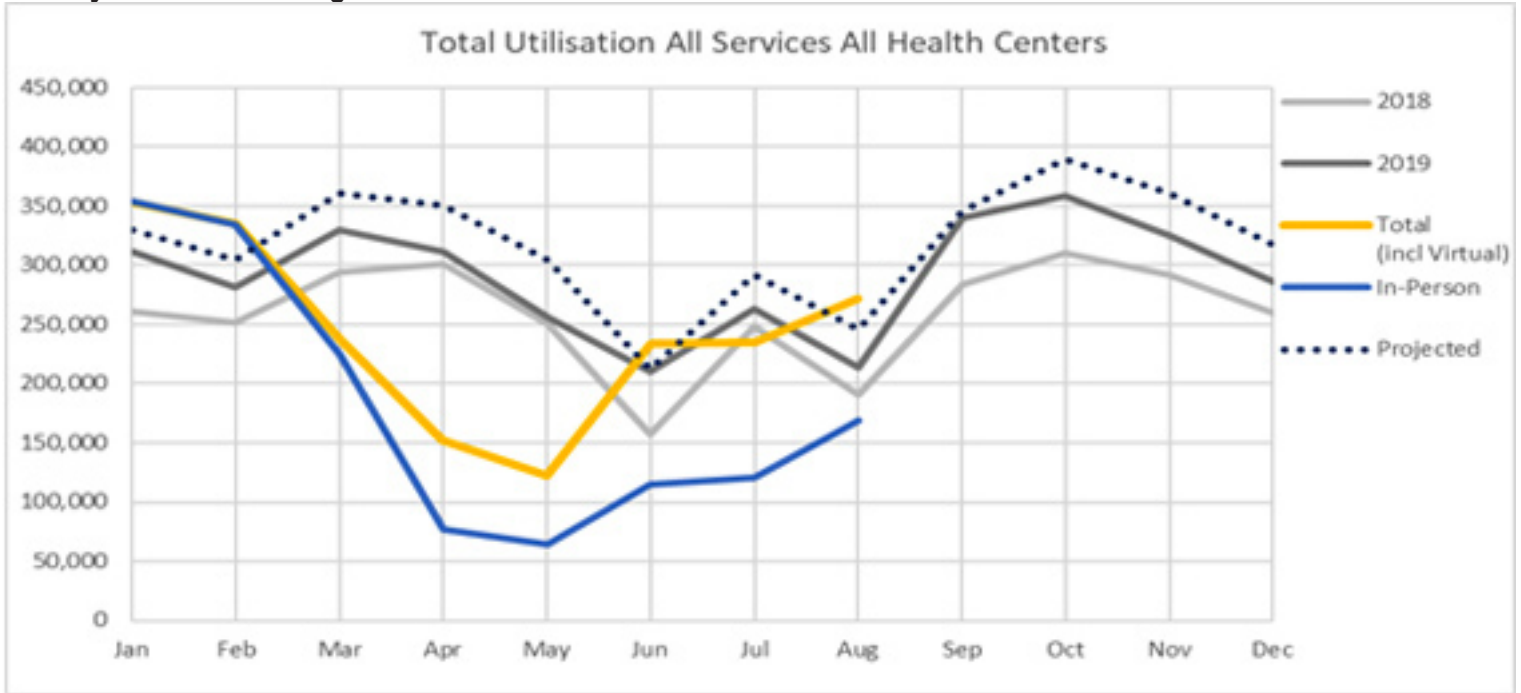
Table 1: Cancelled appointments by service type between 1st of March and 31st August 2020 for all health centers

| Service Type | Cancelled Appointments | % of Cancelled Appointments |
|------------------------------------|------------------------|-----------------------------|
| Family Medicine | 51,175 | 41.9 |
| Dental Services | 32,101 | 26.2 |
| Maternal and Child Health services | 9,368 | 7.7 |
| Preventive services | 7,194 | 5.9 |
| Other | 22,367 | 18.3 |
| Total | 122,205 | 100 |

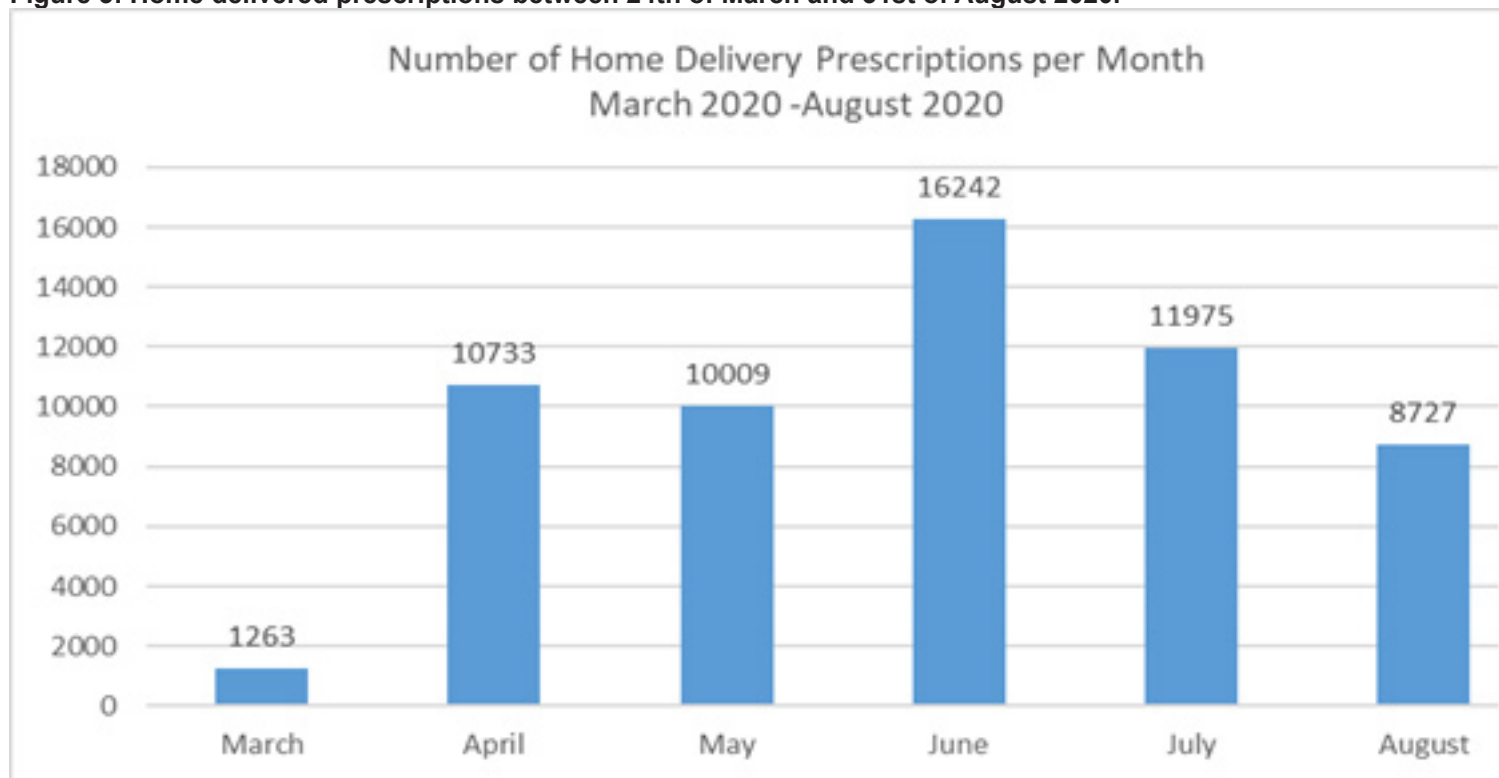
The overall utilization of all PHCC services across all health centers demonstrated a sharp decline from March to May 2020 in comparison to previous years and projected utilization. The reduction reached 50% in April 2020 in comparison to the previous two years (from 300,000 to 150,000 visits shown in Figure 2).

On the 18th of March 2020, PHCC commenced providing teleconsultation for all booked appointments with priority given for noncommunicable diseases (NCDs) patients. PHCC started as of 14th of April 2020 to proactively call all high-risk patients who didn't have a booked appointment scheduled in a 4 weeks' timeframe. Priorities were given for the elderly, NCD patients, and pregnant women. Moreover, the PHCC established an inbound call centre on the 27th of March 2020 to provide teleconsultation on demand. The introduction of the virtual services had grown in utilization volumes to the point where it made up 50% of the total April 2020 consultation volumes and has been established to ensure urgent care is delivered appropriately where required, see Figure 2.

Figure 2: Total virtual consultation and in-person consultation utilization across PHCC health centers between 1st January 2018 and 31st August 2020.



On the 24th of March 2020, PHCC started the implementation of home medication delivery service for the medication refills in collaboration with Qatar Post. The service targeted patients aged 60+ years, NCD, and pregnant women to avoid unnecessary visits to the health centers. Figure 3 shows the increase in the utilization of home medication delivery reaching the highest level in June, reaching up to 58,949 prescriptions delivered in 6 months.

Figure 3: Home delivered prescriptions between 24th of March and 31st of August 2020.

Discussion and Conclusion

The COVID-19 pandemic has impacted primary health care services in Qatar. This impact has both positive and negative sides on the services and patients. To decrease the risk of infection to the patients and health care workers, PHCC in Qatar has cancelled the appointments for some high-risk population e.g. NCD and antenatal visits, dental, and preventive visits e.g. screening and wellness. According to the PHCC reports, those groups of patients represent 49% of the total visits for primary health care in Qatar (13,14). This was reflected in a reduction of 50% in the overall utilization rate in comparison to the expected one for April. However, the cancelled in-person consultations have been replaced with telemedicine consultations except cancer screening which is already reported in a previous study as the most negatively affected service by the pandemic, reaching to 100% cancellation(15).

The pandemic affected the patients' behavior due to either adherence to the recommendations to stay at home, or their perceived risk of infection. Hence, the introduction of virtual services in March had an impact on the utilization volumes to the point where it substituted 50% of the total April 2020 consultation volumes. Home medication refill delivery services for elderly, NCD patients, and pregnant women were introduced by PHCC two weeks after the health authority took preventive measures to reduce unneeded visits to health care facilities. The service uptake reflects a steep incline in demand by the target population reaching almost 59,000 deliveries within 6 months. Although these services were included in the primary care strategic plan, the national response to the pandemic had a positive impact on accelerating the implementation. Both home medication refill delivery and teleconsultation could play a major role in the future to decrease the unneeded visits to

the health centers and make the primary care services more accessible for the community, while the health centers do their role in testing suspected cases and support in contact tracing for COVID-19.

PHCC in Qatar continued to play an important role in screening for the COVID-19 suspected cases at the community through its COVID-19 centers, drive through stations, and the remaining health centers with a total of 194,381 swabbed conducted between March and August 2020. The latter represents almost 18% of the total number of tested people at the national level. Additionally, PHCC through its testing sites managed to detect 13.4% of the total positive cases in Qatar. The highest volume of testing that occurred in August represents the screening requirement for lifting restrictions for workers in business, teachers, pre-travel and post-travel requirement, and suspected cases.

These findings will pave the way for more research to understand in-depth the effects of these findings on the effectiveness of primary care in pandemic response. Also, to investigate more the effectiveness of the teleconsultation and medication home delivery, which include measuring patients' satisfaction and the clinical outcomes on certain high-risk groups.

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