








COVID-19 prevention and control interventions: What can we learn from the pandemic management experience in Morocco?

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SUMMARY

COVID-19 is one of the worst outbreaks in infectious disease history. Through a succession of significant preventative and control interventions, Morocco has accumulated pandemic control experience. This study examines the available evidence on lessons learnt from the COVID-19 pandemic management experience in Morocco. Social lockdown measures have helped restrain the exponential spread of new cases. These interventions appear to be reasonably successful. Their effectiveness must be confirmed by an assessment of other factors. This experience can help all countries develop effective pandemic prevention and control measures.

KEYWORDS

COVID-19, pandemic control experience, pandemic management experience, preventive and control interventions, social lockdown measures

1 | INTRODUCTION

A global outbreak of COroNaVirus Disease (COVID-19), caused by SARS-CoV-2, has been detected for the first time in Wuhan, China, since the end of 2019. SARS-CoV-2 is only transmitted between humans through respiratory droplets, direct contact, asymptomatic transmission, and intra-family transmission.¹⁻⁴ There are now various COVID-19 specific treatments available, as well as several types of SARS-CoV-2 vaccines.

The first case of coronavirus disease in Morocco was reported on 2 March 2020. More than a year later, on 5 June 2021, the Moroccan Ministry of Health (MMH) declared 521,195 confirmed positive COVID-19 cases out of a total of 6,040,467 tests, representing an 8.6% test positivity rate, as well as 9173 deaths, representing a 1.8% case fatality rate, and 508,850 recovered cases, representing a 97.6% recovery rate.⁵ At this time, according to MMH, the cumulative incidence per 100,000 people is 1432.7, the 24 h incidence is 1.2, and the COVID-19 reanimation bed occupancy rate is 6.6%.⁵ It can, therefore, be concluded that all the measures taken have probably allowed a relative deceleration of the spread of the epidemic.

To combat this epidemic, the Moroccan government has established a programme that is focussed on three major components, including timely actions and measures.

First, managing this health crisis is a national issue that affects everyone. It was important to plan efficient and timely actions. Indeed, MMH has designed an urgent plan for health monitoring and emergency response to the coronavirus disease. This was a collaborative effort involving many government departments. Prevention was a priority action in this document, which the idea was to interrupt the virus's chain of transmission and thereby slow its progress. In this regard, the evolution of the pandemic in the national territory has been marked by particular circumstances that have required specific interventions, from the reporting of the first case until today. Among these events was the announcement of the first imported European case. As a result, the identification, reporting, management of possible SARS-CoV-2 infections, and response procedure at border checkpoints were updated. Therefore, flights to many destinations have also been cancelled. Simultaneously, marine trade to Spain and France has been suspended. This partial lockdown was gradual. Other noteworthy events were the first death due to COVID-19, and the beginning of the local transmission. Kindergartens, schools, colleges, high schools, and universities were immediately shuttered until the next academic year. Also, several common areas and services were closed down as a result. Initially, the progressive containment of the population was still partial. The population's progressive health confinement remained partial. On the recommendation of the national scientific commission, the Ministry of Interior proclaimed the country in a state of sanitary emergency. As a corollary, the laws on health confinement, the authorisation of circulation mandatory for any movement outside, and social distancing measures were imposed. It is mandatory to use a face mask when going outside. The state of health emergency remained in effect. These actions have been accompanied by population awareness by advertising spots broadcast on national and radio stations. Also, the MMH reminds citizens that the COVID-19 virus is still prevalent and reconfirms its call to all citizens to strictly adhere to preventive measures such as wearing a protective mask, respecting physical distance, washing hands regularly, and avoiding crowds, especially the elderly and those suffering from chronic diseases. This communication plan was also meant to update the public on the most recent changes in the national COVID-19 epidemiological situation. An online platform was created for this purpose, with the organization of a daily press release and live response to inquiries from the public or media.

In addition, three weeks after the first case of COVID-19, the High Authority for Religious Consultations has ordered the shutdown of religious places of worship. The curfew at night has been imposed, and festivities have been prohibited. Sports and cultural events have been cancelled. Coffee shops, restaurants, public baths, and ceremonial centres have all been forced to close. Distance learning has been implemented in all schools and universities for the remainder of the academic year. The national assessments have been kept and are being taken in the classroom under strict preventative and social distancing measures.

Second, to limit the spread of the coronavirus, a system of tracking, treating, and following up on patients and contacts was adopted. Indeed, the Ministry of Health's Department of Epidemiology and Diseases Control (DEDC)

has adjusted the case definition of SARS-CoV-2 infection depending on the hypothesis that the national epidemiological situation is changing. Following the suggestions of the “technical and scientific advisory council of the national programme for the prevention and control of influenza and acute respiratory infections”, a treatment protocol was designed. The MMH has included Chloroquine and Hydroxychloroquine in this treatment of confirmed Covid-19 cases, with the recommendation of sanitary confinement of affected patients and sanitary surveillance of persons in contact for 14 days. Suspected and confirmed patients are quarantined and treated in specific hospitals designated by each health region. The DEDC has also developed several procedures since February 2020, such as contact management algorithm, contact management guide, organizational diagram of outpatient and inpatient management of possible and confirmed cases of COVID-19, disinfection in the health care setting, and management of probable and confirmed deaths from COVID-19, measures to follow-up and protect health professionals from exposure to the risk of COVID-19, and prescription and Dispensing of Chloroquine and Hydroxychloroquine in Health Care Facilities. There are more than 19 public health laboratories that are now testing for COVID-19. And additional private laboratories have been accredited. Aside from the two major historical laboratories, the National Institute of Hygiene (INH) in Rabat and the Pasteur Institute in Casablanca, there are laboratories, in the country's main university hospitals, including Casablanca, Fez, Rabat, Marrakech, Oujda, Tangiers, and Agadir. For diagnosis, MMH has chosen virology (PCR test) over serology. Serological testing can be used as a supplement to other tests. The testing capacity for Covid-19 has been increased to more than 10,000 per day.

Morocco, as a low-income country, has introduced rigorous measures to manage available human and material resources. The objective was to keep the country's healthcare system from being overburdened. Indeed, there was drug self-sufficiency; supplies of Chloroquine and Azithromycin were sufficient to treat patients. Daily hygienic precautions for patients, as well as room decontamination in hospital structures, were strictly enforced. The cleanliness and appropriate disinfection of the personal protective equipment of front-line healthcare workers has been assured.

The WHO office in Morocco said On 3 March 2021; Morocco is among the first 10 countries that have completed the challenge of vaccination against the COVID19. It is the African country that has immunised the most people so far. The vaccination campaign in Morocco, which has contracted the Chinese laboratory Sinopharm and the British laboratory AstraZeneca, has been progressing at a quick rate since its launch at the end of January 2021. On 5 June 2021, 9,108,843 million Moroccans, out of a total population of 36,288,180 million, have already received the first dose of vaccine, the second dose was given to 5,898,644 people representing 16.3% of the population.⁵

Finally, complementary measures have been put in place to mitigate the social and economic effects on the people as a result of the sanitary confinement, and a partial lockdown. Indeed, quarantine and monitoring still the most effective ways of controlling the spread of infectious diseases.² A special solidarity fund, therefore, was injected into the national economy. This fund is allocated to the improvement of healthcare materials and services. Several hospitals have been supplied with the appropriate equipment and bolstered by healthcare staff. Furthermore, dedicated services for COVID-19 have been designated in each hospital, with health professionals' monitoring and treatment skills being enhanced. Thus, the MMH has increased the bedding capacity reserved for intensive care. Furthermore, as part of the solidarity and social mobilisation, the health authorities have used several hotels and vacation centres to receive patients with COVID-19 who are in a stable state, facilitating monitoring and control during the period of health isolation. Additionally, two military hospitals located at Benslimane and Nouacer, as well as temporary structures (The International Fair of Casablanca), allocated for important athletic and cultural events, and private sector healthcare centres, have been made accessible to the MMH for crisis intervention. As a result, an appeal to the volunteerism of health professionals and the Moroccan Red Crescent has been undertaken to bolster the teams in charge of caring for confirmed positive patients. The national economy has been unaffected by any disruption in food supplies. Throughout the distribution chain, sanitary and hygienic measures have also been included.

In addition, from the beginning of the first weeks of declarations of the first cases of COVID-19 (March 2020) at the national level, the government also controlled the pricing of masks and hydro-alcoholic gels, which were regulated and published in the Official Bulletin. The government has eased the process of acquiring drugs and medical equipment. The masks were sold to the general public at a very low price (0.1 USD \$). Over 5 million masks were

manufactured every day at a low unit cost. Indeed, the Ministry of Industry, Trade, Green and Digital Economy (MIT-GDE) has supported the textile industry in transitioning to the production of protective masks. MITGDE has also initiated the manufacture of artificial respirators made entirely of Moroccan materials.

During the health crisis, the national health system's relevance was challenged. Several dysfunctions had already been documented and were apparent throughout this outbreak. As a result, in addition to offering moral and financial support to healthcare workers, the Moroccan government has initiated a series of discussions on the reform of the national health system.

Containment and health decisions were taken on time in Morocco. These are audacious choices. Early diagnosis and expanded laboratories for viral screening may explain the decrease in mortality and increase in recovered cases. The enhancement can also be attributed to the administration of chloroquine as a therapeutic procedure. However, these measures must be strengthened to combat the following waves of the COVID-19 pandemic, particularly new virus variants. Morocco now has a viral reproduction rate lower than one, suggesting that the country is making progress in controlling the pandemic. This progression is the consequence of Morocco taking decisive action early on, with widespread public approval. Now, utilising modern technologies, we must conduct a massive screening to identify many more cases, particularly asymptomatic patients.

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CONFLICT OF INTEREST

The authors have no competing interests.

ETHICS STATEMENT

This manuscript is a commentary and does not involve a research protocol requiring approval by the relevant institutional review board or ethics committee.

DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

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