

CASE REPORT

# Management of the COVID-19 Pandemic: The Case of Morocco

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## **ABSTRACT**

The response to the COVID-19 pandemic in Morocco built on the experiences and lessons learned from previous epidemics and the management of the COVID-19 pandemic in other countries that preceded it. Nevertheless, these lessons were not successful. This response demonstrates the complexity and limitation that exist between scientific theory and public health policy when an epidemic threatens to affect the economies and daily lives of citizens. We seek to understand the effectiveness of the measures implemented in Morocco in order to draw lessons for action against similar events that may occur in the future. The purpose of our study is to evaluate and highlight the control practices against COVID-19 infection in Morocco as an emerging country.

## **KEYWORDS**

COVID-19; Pandemic; Management; Morocco

## **1. INTRODUCTION**

The main objective of the health system is to maximize the quality of life of individuals and provide a high level of health services to people. World Health Organization (WHO) has issued several guidelines, started online courses and training sessions to raise awareness and preparedness regarding prevention and control of COVID-19 among HCWs [1]. However, epidemics are complex the first complexity comes from the definition of an epidemic, which generally refers to the "Generalized" occurrence of a disease without there being a definition of what "Generalized" means. The second complexity early in novel epidemics is the unknown severity or fatality rate of the disease. The third complexity during an epidemic is variability around diagnosis, vaccination, and treatment. Finally, the response to epidemics is not centralized [2].

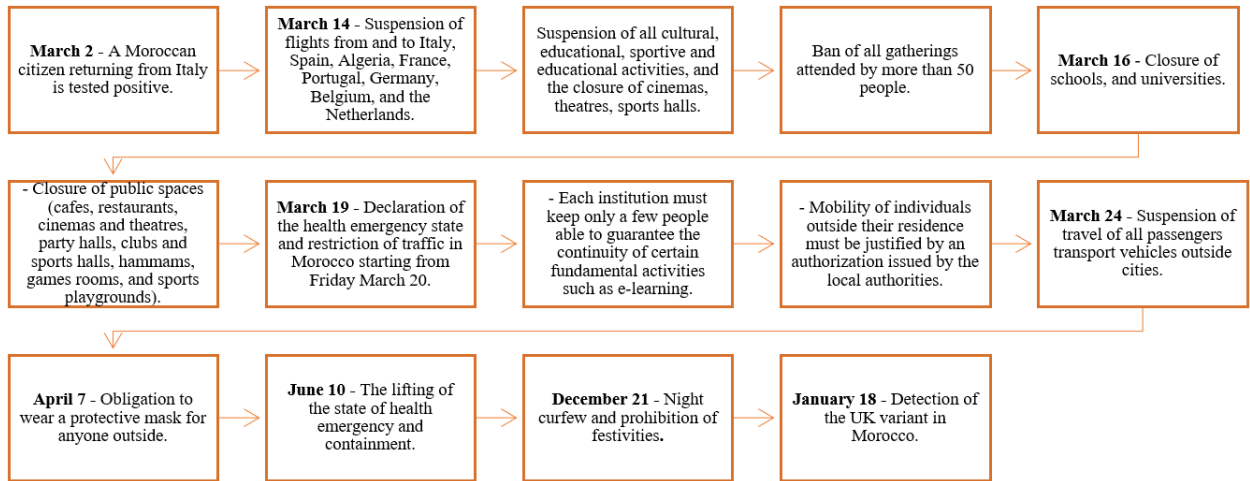
The Ministry of Health provided continued coordination with the relevant governmental bodies and managed to handle the process effectively and efficiently by informing the public regularly. Staines et al. [3] propose a five-step strategy through, which we can contribute significantly during a pandemic to support patients, staff, and organizations: (A) Strengthen the system through readiness assessment, a training program, and a personnel security system. (B) Commit to close collaboration among all stakeholders to ensure that solutions are appropriate

and jointly implemented. (C) Work to improve care through the introduction of teamwork and the development of clinical decision support. (D) Reduce harm by proactively managing risk to both COVID-19 and non-COVID-19 patients. (E) Energize the learning system in order to seize opportunities for improvement, to adapt very quickly and to develop resilience. In public health, two measures involving restrictions on the movement of affected persons are used to prevent the spread of an infectious disease epidemic: [4] The first concerns ill persons; it is the isolation, the second concerns healthy persons but exposed to the contagious disease; it is the quarantine. A third measure was introduced: The confinement (called also: Lockdown). In April 2020, the WHO recommended that countries implement a comprehensive package of measures to slow transmission and reduce mortality, as well as The Evaluation of the Performance of COVID Intervention Systems-19.

## **2. CASE REPORT**

The total population of Morocco is about 37 million inhabitants. The annual demographic growth rate is estimated at 1.0 % (2001-2012) and the median age is of 29-years. Fertility Rate is about the 2.42. About 30% of the population is less than 15-years old. The life expectancy at birth was of 77.4 years (76.2 years for the men and 78.7-years for the women). The distribution of the population by sex is balanced, the women representing 50.5% of the population [5]. Morocco's health system has undergone a number of changes over the past three decades in order to respond to the many financial, organizational, demographic, and epidemiological difficulties encountered, in addition to the shortage of human resources. A recent analysis of the Moroccan health system has identified five dysfunctions [6]: (A) A lack of access to health care for the population and especially in remote rural areas, (B) A very large deficit in human resources, (C) A lack of funding, (D) A crisis of confidence of the population towards their health systems and (E) A deficit in governance. The Morocco health system is divided into two interconnected subsystems for those with the ability to contribute a percentage of their income (the Contributory Regime) and those in the informal sector or with income below a poverty threshold, who do not pay contributions to their insurance (the Subsidized Regime). Primary health care plays an important role in the detection and the initial care of patients suspected of COVID-19. The introduction of the primary care approach allows for efficient use of resources by reducing the burden of unnecessary use of hospital emergency departments. It also reduces inequity in the detection of COVID patients, the initial care, and the follow-up of the positive patients.

On March 11, 2020, the World Health Organization (WHO) characterized COVID-19 which is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) as a pandemic. In Morocco, the first detected case has been reported on March 2, 2020, which was imported from Italy. Then, Morocco has declared the closing of all borders on March 15, 2020 and closing all schools, universities, and mosques in addition to prohibiting all gatherings on March 16, 2020. The state of emergency in the country and curfew was declared from March 20, 2020, and wearing the facemasks became mandatory from April 7, 2020 (Figure 1). The epidemic began to spread relatively slowly during the first phase to reach 21,387 cases and 400 total deaths at the end of July, with a daily peak of 200 cases, the second phase began in early September with an upward trend to reach a daily peak of 6,195 cases on November 12, 2020. On December 31, 2020 the number of 439,193 positive cases is reached with 7,383 total deaths [7] (Table 1). The evolution of the epidemic was confronted with the dates of introduction of countermeasures, namely: Closing schools, suspending unnecessary activities: Sports, restaurants and cafés; closing borders; confinement and state of public health emergency; and compulsory wearing of a mask.



**Figure 1:** The actions taken against the COVID-19 pandemic in Morocco.

**Table 1:** The comparative evolution between the two waves of COVID-19 in Morocco.

Indicators	First Wave	Second Wave
<b>Date of the First Case</b>	First Case (2 March)	
<b>Daily Peak</b>	259 (18 April)	6195 (12 November)
<b>Total Case</b>	9839 (15 June)	440000 (31 December 2021)
<b>Total Death</b>	276 (15 June)	7388 (31 December 2021)
<b>Case-Fatality Rate</b>	2.76%	1.7%
<b>Total Tests</b>	-	4 457 349 (31 December 2021)

### 3. DISCUSSION

Morocco has opted for a progressive containment against the differentiated containment opted by other countries. We note the enormous response capacity achieved through the coordination of public health systems around the world. We suggest that measures to reduce transmission should be rapidly implemented [8]. Government communication on the measures taken does not reach certain vulnerable population groups: People who do not speak one of the mother tongues, people with mental disorders or limited health knowledge, and homeless patients. To build confidence in the health system any political and economic events should be monitored [9]. The increase in the number of COVID-19 cases are used to monitor and judge the performance of countries' responses to COVID-19, although this indicator is not very reliable for assessing the performance of response systems [10] (Table 2). The need to categorize and quantify the dominant variables governing the pandemic is necessary in addition to information on mild, severe and critical cases [11]. Many challenges could be Structural changes of the health system, commitment of leadership, the miss information, and safety and security [12]. Efforts must be maintained to test as many people as possible, continue to improve tracing, treatment and isolation activities [13].

**Table 2:** Assessment of preparedness for the COVID-19 pandemic in Morocco.

Variables	Mass Screening	Confinement	Hospital Preparation	Critical Care Beds 100000 Pop	Hospital Crowding	Research Investment	Social distancing
Morocco	+	++	+	4.82	++	+	+

(+) Low (++) Medium (+++) Strong

#### **4. LEARNING POINTS**

The response to the COVID-19 pandemic in Morocco suggests that many of the lessons learned from past epidemics and the management of the COVID-19 pandemic in the world's predecessor countries have been implemented. Nevertheless, the lessons have not been successful. There are many conclusions to be drawn from this pandemic. Structural changes need to be made to health systems so that they can adapt to a dynamic pandemic environment. The commitment of leadership is paramount for an effective fight against this pandemic. Communication is essential both within the control teams and with external partners. The timely delivery of recommendations to clinicians with a multimodal approach is important. Safety monitoring through the reporting of adverse events related to pandemic cases. Measures of quality of care must be maintained despite the challenges and difficulties that may be encountered.

#### **5. CONSENT**

Informed consent for patient information to be published in this article was not obtained because of we are not dealing with people.

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