

COVID-19 in Saudi Arabia: the national health response

Anas Khan,¹ Yousef Alsofayan,² Ahmed Alahmari,² Jalal Alowais,³ Abdullah Algwizani,⁴ Haleema Alserehi,⁵ Abdullah Assiri⁶ and Hani Jokhdar⁷

¹Department of Emergency Medicine, College of Medicine, King Saud University, Riyadh, Saudi Arabia. ²Global Center for Mass Gatherings Medicine, Ministry of Health, Riyadh, Saudi Arabia. ³Department of Surgery, College of Medicine, Imam Mohammed ibn Saud Islamic University, Riyadh, Saudi Arabia. ⁴Saudi Center for Disease Prevention and Control, Riyadh, Saudi Arabia. ⁵Executive Department for Global Health, Saudi Center for Disease Prevention and Control, Riyadh, Saudi Arabia. ⁶Ministry of Health, Riyadh, Saudi Arabia. ⁷Deputyship of Public Health, Ministry of Health, Riyadh, Saudi Arabia. (Correspondence to: Yousef M. Alsofayan: y-m-alsofayan@hotmail.com).

Abstract

Background: With the spread of coronavirus disease 2019 (COVID-19), most countries rushed to take early measures to control this disease.

Aims: This paper describes and evaluates the Saudi Arabian strategic preparedness and response plan on COVID-19 up to 31 December 2020.

Methods: Saudi Arabia adopted the World Health Organization's guidelines on response to COVID-19, which are based on nine pillars of public health preparedness and response. The measures Saudi Arabia took are assessed against these pillars.

Results: In response to COVID-19, Saudi Arabia prepared public and private institutions to deal with the pandemic. Saudi authorities established a governance system comprised of responsible committees to continuously monitor national and international updates, trace contacts, screen the population, raise awareness and take proper actions to contain the spread of this disease. After the announcement of the first case in Saudi Arabia, all schools, social events, sports activities, domestic travel and international flights were suspended. Restrictions on social movement, social and religious gatherings, travel and businesses were imposed ahead of the first 100 confirmed COVID-19 cases. The Hajj pilgrimage for 2020 was scaled down to limit participants and no cases of COVID-19 were detected among pilgrims. The country maintained all basic health services and immunization programmes and supported all proposals for COVID-19 drugs and vaccines. The country is working to develop its capacity to produce these products and achieve self-sufficiency.

Conclusion: Saudi Arabia took extreme measures to respond to COVID-19 which contributed to limiting the spread and effect of the disease.

Keywords: COVID-19, pandemics, public health, Saudi Arabia

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Introduction

The World Health Organization (WHO) advised all countries to contain the spread of the coronavirus disease 2019 (COVID-19) pandemic (1,2). A well structured response should include: (i) active surveillance measures; (ii) continuous prevention and control of infection; (iii) effective plans for health care facilities; (iv) postponement of mass gathering events; and (v) raising public awareness and understanding of the disease (3).

According to WHO, each government is the natural leader in national risk management for overall coordination and communication. However, due to the increased burden on health systems, the strategic response to COVID-19 varied worldwide, in terms of prevention, response and operational readiness (4).

Saudi Arabia is the largest county in the Arabian Peninsula. It has a well established health care system that is offered for free to all residents. The health care system has 494 hospitals and 22.5 beds per 10 000 people (5). In 2019, the country had 113 000 physicians (6).

In the WHO Eastern Mediterranean Region, trends in the COVID-19 pandemic differed substantially across the region in virus transmission, number of COVID-19 cases, deaths and hospitalizations. These differences could be due to the preparedness of the public health sector, early precautionary measures, restrictions on mass gathering events, restricted international arrivals and the proportion of the population with risk factors (older people and people with comorbidities) (7). We aim to describe the Saudi Arabian strategic preparedness and response plan on COVID-19 in line with the *WHO operational planning guidelines to support country preparedness and response during December 2019 to December 2020* (8). These guidelines were based on nine pillars of public health preparedness and response – pillar 1: country-level coordination, planning, and monitoring; pillar 2: risk communication and community engagement; pillar 3: surveillance, rapid response teams, and case investigation; pillar 4: points of entry, international travel, and transport; pillar 5: national laboratories;

pillar 6: infection prevention and control; pillar 7: case management; pillar 8: operational support and logistics; and pillar 9: maintaining essential health services and systems. We also describe Saudi Arabia vaccine response and contribution to research on COVID-19.

Country-level coordination, planning and monitoring

National emergency response committee

To facilitate an effective response to COVID-19, a national emergency response committee was established to develop measures across all sectors. This committee was chaired by the Minister of Health (8). The National Command and Control Center within the health ministry was activated to continuously monitor international, national and regional updates and take operational action (9).

Early measures were taken by the committee to limit the spread of COVID-19, including managing confirmed cases, repatriating Saudi citizens abroad, upgrading port procedures, facilitating and supplying the health sector with essential resources and requirements, and assessing the risks of mass gathering events (9,10). Based on the risk assessment tool of the Saudi Center for Disease Control, Saudi Arabia, at an early stage of the pandemic, issued warnings against travelling to risky countries with high incidence of COVID-19. Then, when the global spread of COVID-19 was rising, all international and domestic flights were suspended on 15 and 21 March, 2020, respectively (11).

Risk assessment tools for mass gathering events

Saudi Arabia has unique experience in using scientific tools for planning and conducting mass gathering events (12). In 2010, the Saudi health ministry established the Global Center for Mass Gatherings Medicine and developed a set of risk assessment tools for mass gathering events, including the Jeddah tool for religious mass gathering events and the Salem tool for small to medium mass gathering events. With COVID-19, the Salem tool was modified to the Salem COVID tool, which was used to assess the health risks of COVID-19 in mass gathering events (13,14). The Jeddah tool was used to conduct a strategic assessment of the health risks due to the pandemic of Umrah and Hajj (13). All decisions on holding mass gathering events were based on these tools, including suspension of Umrah and its phased limited return, and performing “Safe Hajj 2020”. All factors related to these decisions were taken into account, including the impact on national health resources and global health security (5,15–19).

Risk communication and community engagement

Risk communication and community engagement is a vital public health intervention that helps detect and respond to concerns, rumours and misinformation (20). The Saudi Arabian Ministry of Health organized a daily press conference to ensure a reliable source of information for the community on the ongoing situation, procedures and efforts (21,22). Furthermore, in collaboration with other sectors, the Ministry of Health produced professional media materials that provided effective and reliable information for both the general population and health care workers. Through various media platforms (e.g. video and text messages), the Ministry of Health conveyed scientific information in non-technical language – in Arabic, as well as in the languages of the many expatriates living in Saudi Arabia – to reach the maximum number of people nationwide with reliable, official information. Of note, the Ministry of Health implemented several community empowerment strategies, such as monitoring citizens’ response to precautionary measures in social media so measures could be adjusted and modified accordingly (5).

Furthermore, the health hotline centre (no. 937) was scaled up to over 2000 employees to: (i) provide immediate support to the public and address their concerns; (ii) provide medical advice for the general population and at-risk people; and (iii) provide psychological support to the citizens to prevent anxiety and panic. This service is provided around the clock. It was supplemented by other communication channels such as Sehaty (Ministry of Health application (App)), WhatsApp and chatbots services. The needs of special populations were not overlooked; for example, the Sign Language app was developed to ensure effective messages to people with hearing disabilities (5,23).

The Ministry of Health also developed Tetamman and Mawid applications to assess suspected cases and monitor confirmed ones by providing protection and guidance to the public (24,25). The applications ensured the safety of cases and promoted recovery measures through educational information, test results, updates of contact details, daily follow-up of patients’ health status, contact with the health hotline centre (no. 937) and a countdown indicator for self-isolation (24,25).

In its national response document, the Ministry of Health presented data on the utilization of its different risk communication and community engagement messages. Over six and half billion messages were sent up to the end of August 2020, while the educational videos had over 150 million views. Furthermore, over nine million people benefited from public awareness campaigns (5). As of the 24 November 2020, the health hotline centre (no. 937) had received nearly 22 million calls.

Surveillance, rapid response teams and case investigation

The Ministry of Health activated rapid response teams of specialists in infectious diseases and infection prevention and control, including physicians, nurses, epidemiologists and public health professionals. The main functions of these teams were to evaluate and monitor confirmed cases, analyse daily data on the global burden of COVID-19, prepare daily reports, prepare periodic instructions and guidelines, update the COVID-19 manual and prepare information and training courses for the public (26).

Health electronic surveillance network

The health electronic surveillance network provided a robust online solution in response to the pandemic. The system was an integrated public health information system that created an extensive and easily accessible database on one platform to overcome the challenges of linking all health care sectors in the country. This network contributed to disease detection, response, prevention, control and community health monitoring, and enabled decision-makers to implement necessary measures based on timely and high-quality data (27).

Mass screening programmes

Saudi Arabia launched a mass screening programme for early detection and immediate control of the spread of COVID-19. The first stage focused on screening individuals in highly populated districts through field tests; this was implemented in 807 locations (5). The second stage was facilitated through the Mawid app self-assessment tool, which classifies users as low or high risk. The low-risk group was the targeted population and was screened in designated primary care centres (25,28,29). The third stage was screening suspected COVID-19 cases with no symptoms at specialized drive-through testing centres, so-called takkad centres (30) – 1 847 573 tests had been administered up to mid-August 2020 (5).

The implementation of Tetamman clinics (specialized fever clinics) was another initiative devoted to screening people suspected of having COVID-19 without prior appointments. This service was free of charge, and provided diagnostic tests and therapeutic options for people with suspected COVID-19 symptoms, such as fever, shortness of breath, cough and other common clinical characteristics of COVID-19. These clinics had an immediate effect on relieving the pressure on emergency departments (31,32). More than 239 Tetamman clinics were opened and had received more than 1.5 million visitors by the end of November 2020 (5,33).

Points of entry, international travel and transport

Many efforts and resources focused on surveillance activities at land, sea and air points of entry to control the

spread of COVID-19 (34). This included screening travellers after filling the health declaration forms, intensifying epidemiological surveillance, applying precautionary measures, developing a mechanism to detect travellers from high-risk countries, and direct them as needed. National COVID-19 guidelines were issued and personnel at ports were trained on precautionary measures. Saudi airports enhanced COVID-19 awareness through posters and educational videos. Airport authorities continuously monitored and evaluated all activities in terms of preparedness and effectiveness of measures (28,35). Of note, Saudi Arabia was ranked as the safest place in the region and the sixth safest place to travel worldwide according to the standards of the European Union for coordination of travel restrictions (36).

National laboratories

Saudi Arabia increased its laboratory readiness and ability to manage and analyse COVID-19 samples, and collaborated with international reference laboratories. The National Public Health Laboratory of the Saudi Center for Disease Control, as well as many regional laboratories, actively received and analysed the increasing number of COVID-19 samples. The national laboratory adopted and monitored all standard operating procedures for samples to achieve the highest validity and reliability and rapid turnaround time (28). The results of the samples were linked immediately to the database of the Health Electronic Surveillance Network. The laboratory of the Center for Disease Control also developed readiness plans for urgent surge capacity through the activation of all regional laboratories and laboratories of other sectors in Saudi Arabia (37). At the same time, analysis of samples of other viruses continued so as to prevent the spread of other epidemics in conjunction with COVID-19 (28).

Infection prevention and control

The Ministry of Health prepared guidelines for case treatment, epidemiological surveillance, health facilities and all segments of society. Furthermore, the Saudi Center for Disease Control published the infection prevention and control manual to guide all sectors during the COVID-19 pandemic (28). Details of these guidelines are given in the national response document issued online by the Ministry of Health (5).

Health care awareness guidance

The Ministry of Health developed procedures and guidelines for infection prevention and control and health facility preparations, which included updated criteria for respiratory screening, isolation rooms, hand hygiene stations and staff training on the basic principles of infection prevention and control, such as the use of personal protective equipment and methods of hand hygiene (26). In collaboration with infection prevention and control teams, supply teams and stock control teams, the Ministry of Health continuously identified the required

quantities of personal protective equipment and hand disinfection products, and their estimated use in health facilities. The Ministry of Health also established a mechanism to monitor, record and investigate COVID-19 cases in health workers and confirmed COVID-19 cases. Daily indicators were created and monitored by the Command and Control Center for appropriate action (9).

Public awareness guidance

In collaboration with the Saudi Center for Disease Control, the Ministry of Health issued and distributed public guidelines targeting high-risk locations (38). Moreover, these guidance materials were issued in various languages to ensure maximum accessibility to all citizens and residents in the country (21).

Case management

Readiness of health care facilities in Saudi Arabia

All Saudi primary health care centres, hospitals and quarantine facilities were prepared to receive large numbers of suspected and confirmed cases of COVID-19. This high level of preparedness put the health care system under constant pressure. Personnel at these facilities were aware of the definition of COVID-19 and gave priority and appropriate care to patients at risk of infection. In the early phases of the pandemic, the General Directorate of Hospitals designated reference hospitals to receive COVID-19 cases and continuously assessed their readiness. Reference hospitals reported their estimated isolation capacity, intensive care beds and their occupancy rates.

Moreover, the General Directorate of Hospitals monitored respirators and respiratory consumables, calculated the workforce required for escalation of cases and planned all necessary measures (28). Dedicated ambulance teams were allocated to transport confirmed and suspected cases to and from health facilities in cooperation with the Ministry of Health referral programme (28). Ensuring that field hospitals were prepared and ready to support the health system was a priority at the early phases of the pandemic, as these facilities were used to provide COVID-19 vaccination in large numbers. Four field hospitals with a capacity of 1100 beds were put into operation in order to increase capacity during the pandemic (5). Psychological counselling and support were provided to patients, health workers and the community in the early stages of the pandemic in cooperation with mental health teams (39). In addition, private health care facilities, home medical care and telemedicine centres were activated to relieve the strain on Ministry of Health facilities.

Digital health services were used extensively to reduce the number of visits to health care facilities, and hence reduce the possibility of infection (40). The Ministry of Health also implemented mobile apps to help affected patients and their contacts. For example, the Tawakkalna app offered a secure way to report confirmed and/or suspected cases, thus breaking the chain of infection. The

app had almost seven million user at the end of August 2020 (41). Likewise, the Tabaud app provided users with a notification if they came in close contact with a COVID-19 case, or somebody later found positive for COVID-19; this app started with 15 000 participants (42). Telemedicine services served more than five million users during the pandemic; besides, the Tetamman app was used by more than one and half million users from April to August 2020 (5,43).

Quarantine process

Quarantines played an essential role in preventing the spread of COVID-19 by separating confirmed and suspected cases (44). Before reaching the designated quarantine locations, each traveller returning from abroad is provided with information on the pandemic and quarantine. On arrival, educational materials, masks and hand sanitizers are offered. The medical team then completes screening procedures and triages cases to either hospital or quarantine according to their condition (45). By the end of the quarantine period, any additional polymerase chain reaction testing for cases is coordinated by the medical teams (28). With the availability of electronic bracelets and apps, the choice for home quarantine is provided if housing conditions are appropriate, and many choose this option (46).

Free health care services

The health care services in Saudi Arabia are free-of-charge for all citizens, and residents are required to have medical insurance from their employers (47). As of the 30 March, 2020, the Saudi health authority announced that COVID-19 treatment is free for all citizens and residents. This includes residency violators without any legal consequences (5).

National treatment protocol

The Ministry of Health issued a national treatment protocol for suspected and confirmed cases of COVID-19, which is updated regularly according to scientific studies and international protocols. This protocol aims to provide treating physicians with the best evidence-based approach for the management of COVID-19 cases, without replacing their clinical judgement. The protocol covers supportive care and pharmacotherapy for management of asymptomatic, mild-to-moderate, and severe cases. It also highlights recent evidence on the management of special populations, such as pregnant women and patients on thromboprophylaxis (48). The Ministry of Health set up several monitoring teams who were trained to evaluate compliance with the protocol to ensure effective implementation of the treatment protocol in intensive care units. Furthermore, the Ministry of Health followed up on COVID-19 management in hospitals and issued recommendations for the use of the protocol and minimization of side-effects (5).

Operational support and logistics

Inventory control

Inventory control includes monitoring the exchange and consumption rates of medical stocks to ensure the needed supply. Several national factories joined initiatives to produce sterilizers, masks and ventilators locally to ensure the sustainability of medical equipment during the COVID-19 pandemic (49,50).

Electronic health support

Electronic health support (E-health) had a significant role in responding to COVID-19; it provided several key indicators for health care facility preparedness and epidemiological surveillance. These indicators included: isolation hospital health staff dashboard; blood sample reports; sample carrier shipments; supply dashboard; COVID-19 mortality reports; workforce; blood bank dashboard; and many others (51). E-health was also supported by the launch of electronic apps to educate, assess and monitor confirmed and suspected cases (24,25). Moreover, COVID-19 scientific materials were summarized and translated into different languages and uploaded onto a unified electronic platform to help communication with the public (21). E-health also supported the role of virtual clinics, telemedicine, teleconsultations, teleradiology and use of robotics to prevent the spread of COVID-19 (5).

Community volunteering

Community participation and health volunteering have a role in responding to pandemics (52). Volunteer teams underwent general and specialized training to deal with the pandemic in public places and health care facilities. The Ministry of Health estimated that these volunteering activities involved about 32 000 volunteers and 1.1 million volunteer hours as of end of August 2020 (5).

Maintaining essential health services and systems

Although all efforts of the Ministry of Health were directed towards tackling the COVID-19 pandemic as a top priority, this did not replace their primary role in maintaining essential health services for all people as required. Hospitals and health care centres ensured the provision of their services through virtual clinics and/or hospital clinics, and provided special teams to follow and monitor patients (8). Examples included diabetes, rehabilitation and specialized oncology services (53).

In various regions within Saudi Arabia, health centres provided medication and vaccination delivery services to people's homes. To prevent further spread of communicable diseases in the community, the scheduling and monitoring of routine vaccinations for children were enhanced in the early stages of the COVID-19 pandemic, in accordance with WHO recommendations (54). The number of available appointments for routine vaccinations (seasonal influenza and paediatric immunizations) reached

more than 10 million appointments as of the end of August 2020, and the efficiency of vaccination in primary care centres was monitored closely (54,55).

COVID-19 vaccination

On the 10 December 2020, Saudi Arabia approved the Pfizer/BioNTech COVID-19 vaccine through the Saudi Food and Drug Authority and prioritized targeted populations – elderly people and frontline health care workers in the first phase (56). The vaccine programme was launched in mid-December 2020 and, as of 7 February 2021, 431 608 doses have been administered through four sites. The programme aims to cover 17.4 million adults (70% of the adult population of Saudi Arabia) by the third quarter of 2021. Saudi Arabia also approved the Astra-Zeneca/Oxford vaccine and an expected ten million doses were planned for delivery in February 2021.

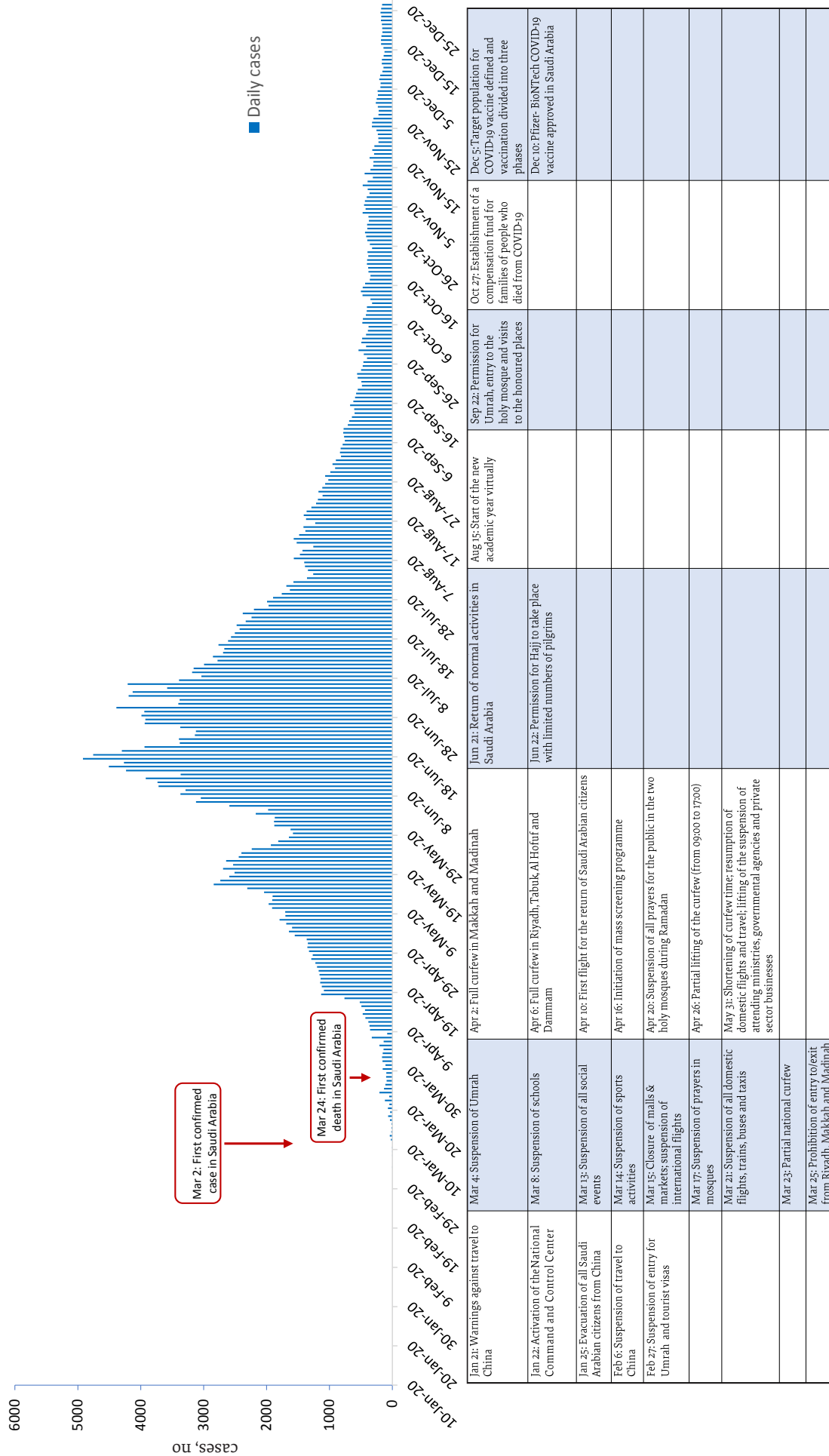
Research

Studies have shown the importance of exploring the etiologies, clinical characteristics and therapeutic options in many previous pandemics. Saudi Arabia paid great attention to supporting urgent medical research programmes and publishing data on COVID-19. In this context, the National Committee for Pandemic Research was formed. Its main objectives were to support and encourage scientific research, establish and publish priorities for COVID-19 research, and announce the opening of proposals for scientific research support programmes (57,58). From the start of the pandemic until May 2020, 100 proposals were granted ethical approval. Moreover, Saudi Arabia assured the use of the best protocols for new treatments and vaccines from international and national research institutions. Saudi Arabia had an important role in the research efforts for the development of COVID-19 vaccines: the contribution of the country to international trials on MERS-CoV, including trials for the development of the new ChAdOX1 vaccine and the MIRACLE trial, provided a solid basis of the country's participation in the international efforts against COVID-19 (59–61). The Ministry of Health has supported a national clinical study of blood plasma transfusion as a treatment in more than 21 sites (62). Furthermore, Saudi Arabia has drawn up a plan to restudy the infrastructure needed to develop new drugs and vaccines to achieve local sufficiency (63). Overall, Saudi Arabia was the leading country in the Arab world, and the 18th globally, in COVID-19 research (64).

Summary of Saudi Arabia's response

Figure 1 and Box 1 summarize the measures taken by Saudi Arabia in preparing and responding to COVID-19. In its national response document, the Ministry of Health evaluated whether each of the above-mentioned strategies achieved its aim with regard to each preparedness and response pillar and presented the relevant statistics (Table 1).

Figure 1 Total confirmed COVID-19 cases and government decisions and measures taken in response to COVID-19, Saudi Arabia, 2020



Box 1 Saudi Arabian national response measures and health preparedness in response to COVID-19 according to WHO pillars, 31 December 2020

1. Country-level coordination, planning and monitoring

- National emergency response committees
- Risk assessment tools in mass gathering events

2. Risk communication and community engagement

- Media
- Awareness campaigns
- Community empowerment
- eHealth

3. Surveillance, rapid response teams and case investigation

- Health electronic surveillance network
- Mass screening programmes

4. Points of entry and international travel

- Travel restrictions
- Preparedness of the points of entry

5. National laboratories

- Increase laboratory readiness
- Collaboration with international laboratories

6. Infection prevention and control

- Health care awareness guidance
- Public awareness guidance
- COVID-19 vaccination

7. Case management

- Health care facility readiness
- Quarantine process
- Free health care services
- National treatment protocols

8. Operational support and logistics

- Inventory control
- Electronic health support
- Community volunteering

9. Maintaining essential health services and systems

- Hospitals
- Primary care centres
- Education and training

Conclusion

Saudi Arabia's strategic preparedness for and response to COVID-19 is continuously evolving. Lessons were learnt from success stories and improvements made throughout the pandemic at national and international levels. Early collaborative teamwork of many sectors with clear roles and responsibilities is

a cornerstone to contain the spread of the COVID-19 pandemic. The next stage in the response to COVID-19 is to preserve the gains achieved to date, because the risk of resurgence of the disease remains until effective vaccines are delivered globally.

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Competing interests: None declared.

La COVID-19 en Arabie saoudite : plan national de riposte du secteur de la santé

Résumé

Contexte : Face à la propagation de la maladie à coronavirus 2019 (COVID-19), la plupart des pays se sont hâtés de prendre des mesures précoces en matière de riposte.

Objectifs : Le présent article décrit et évalue le plan stratégique saoudien de préparation et de riposte à la COVID-19 jusqu'au 31 décembre 2020.

Méthodes : L'Arabie saoudite a adopté les lignes directrices de l'Organisation mondiale de la Santé sur la riposte à la COVID-19, qui s'appuient sur les neuf piliers du plan stratégique de préparation et de riposte en santé publique. L'évaluation des mesures prises par l'Arabie saoudite est basée sur ces piliers.

Résultats : En réponse à la COVID-19, l'Arabie saoudite a préparé les institutions publiques et privées à faire face à la pandémie. Les autorités saoudiennes ont mis en place un système de gouvernance composé de comités chargés de la surveillance continue de l'évolution de la situation au plan national et international, du suivi des contacts, du dépistage et de la sensibilisation de la population, et de l'adoption de mesures appropriées pour endiguer la propagation de cette maladie. Après l'annonce du premier cas en Arabie saoudite, l'ensemble des écoles ont été fermées, et les événements sociaux, les activités sportives, les voyages intérieurs et les vols internationaux ont

tous été suspendus. Des restrictions sur les mouvements sociaux, les rassemblements publics et religieux, les déplacements et les entreprises ont été imposées avant la survenue des 100 premiers cas confirmés de COVID-19. La participation au pèlerinage du Hadj de 2020 a aussi été soumise à des restrictions, si bien qu'aucun cas de COVID-19 n'a été détecté parmi les pèlerins. Le pays a maintenu tous les services de santé et les programmes de vaccination de base et a soutenu toutes les propositions de médicaments et de vaccins contre la COVID-19. L'Arabie saoudite travaille au renforcement de sa capacité à fabriquer ces produits et à son objectif d'autosuffisance.

Conclusion : L'Arabie saoudite a pris des mesures extrêmes pour lutter contre la COVID-19, ce qui a contribué à y limiter la propagation et les effets de la maladie.

كوفيد-19 في المملكة العربية السعودية: الاستجابة الصحية الوطنية

أنس خان، يوسف السفينان، أحمد الأحري، جلال العويس، عبد الله القوزاني، حليلة السريحي، عبد الله عسيري، هاني جوخدار

الخلاصة

الخلفية: مع انتشار مرض فيروس كورونا 2019 (كوفيد-19)، سارع معظم البلدان إلى اتخاذ تدابير مبكرة لمكافحة هذا المرض.

الأهداف: هدفت هذه الدراسة إلى وصف وتقييم خطة التأهب والاستجابة الاستراتيجية للمملكة العربية السعودية بشأن كوفيد-19 حتى 31 ديسمبر / كانون الأول 2020.

طرق البحث: اعتمدت المملكة العربية السعودية المبادئ التوجيهية الصادرة عن منظمة الصحة العالمية بشأن الاستجابة لكوفيد-19، والتي تستند إلى تسع ركائز للتأهب والاستجابة في مجال الصحة العامة. ويجري تقييم التدابير التي اتخذتها المملكة العربية السعودية في ضوء تلك الركائز.

النتائج: استجابة لكوفيد-19، جهّزت المملكة العربية السعودية مؤسسات عامة وخاصة للتعامل مع الجائحة. حيث أنشأت السلطات السعودية نظاماً للحكومة يتألف من لجان مسؤولة عن الرصد المستمر للتحديثات الوطنية والدولية، وتتبع المخالطين؛ وفحص السكان، ورفع مستوى الوعي، واتخاذ الإجراءات المناسبة لاحتواء انتشار هذا المرض. وبعد الإعلان عن الحالة الأولى في السعودية، أوقفت جميع المدارس، والمناسبات الاجتماعية، والأنشطة الرياضية، والسفر الداخلي، والطيران الدولي. وفرضت قيود على التنقل الاجتماعي، والتجمعات الاجتماعية والدينية، والسفر والأعمال التجارية قبل ظهور أول 100 حالة مؤكدة من حالات كوفيد-19. وحُفّض عدد حجاج بيت الله الحرام لعام 2020 من أجل الحد من المشاركين فيه، ولم يُكشف عن وجود أية حالات إصابة بكوفيد-19 في صفوف الحجاج. وواصل البلد تقديم جميع الخدمات الصحية الأساسية وبرامج التحصين ووفر الدعم لجميع المقترحات المتعلقة بعقائير كوفيد-19 ولقاحاته. كما يعمل البلد على تطوير قدرته على إنتاج تلك المنتجات وتحقيق الاكتفاء الذاتي منها.

الاستنتاجات: اتخذت المملكة العربية السعودية تدابير مُشدّدة للتصدي لمرض كوفيد-19 ما ساهم في الحد من انتشار المرض وتأثيره.

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