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# Rapid Response: Informing United Arab Emirates' Response to the COVID-19 Pandemic

April 2020



Faculty of Health Sciences  
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Knowledge to Policy Center  Mentorship Program



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**Rapid Response:**

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Response to the  
COVID-19 Pandemic**

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# Key Messages

## United Arab Emirates Context

- On March 11, 2020, the World Health Organization declared COVID-19 a pandemic, signalling to the world that continued spread is likely, and that countries should prepare for the possibility of widespread community transmission.
- The first case of COVID-19 in the United Arab Emirates was confirmed on 29 January 2020; since then, the number of cases has continued to grow exponentially.
- As of April 30, 2020 (end of day), 11,929 cases of coronavirus have been confirmed with a death toll of 98 cases. The UAE has conducted over 1,122,000 COVID-19 tests among UAE citizens and residents over the past two months, in line with the Ministry of Health and Prevention's plans to intensify virus screening in order to contain the spread of COVID-19.
- There were key UAE policies, laws, regulations and decrees that has been announcements for immediate implementation to limit the spread of COVID-19, to prevent panic and to ensure the overall food, nutrition and well-being are provided.
- The UAE is amongst the World's Top 10 for COVID-19 Treatment Efficiency and in the World's Top 20 for the implementation of COVID-19 Safety measures.
- The UAE's mission is to work towards resuming life after COVID-19 and enter into the recovery phases.





# Preamble

On December 8, 2019, respiratory illness caused by a new coronavirus (COVID-19) was first identified in Wuhan city, China and subsequently reported to the public by the end of the year (Chen & Yu, 2020; El-Jardali et al. 2020). The source of Coronavirus 2019 (COVID-19) has not yet been identified. Early on in the outbreak, many of the patients in Wuhan, China, reportedly had some link to a large seafood and animal market, suggesting the likelihood that the virus emerged from an animal source. Analysis of the genetics of this virus is ongoing, to ascertain the exact source of the virus (MoHaP, 2020).

Spreading to 210 countries and territories in less than 4 months, the virus has now affected more than two million people worldwide. On March 11, 2020, the World Health Organization declared COVID-19 a pandemic, signalling to the world that continued spread is likely, and that countries should prepare for the possibility of widespread community transmission (El-Jardali et al. 2020).

While health systems in high-income countries would be stretched by the outbreak, the most devastating effects would be in countries with weak health systems, ongoing conflicts, or existing infectious disease epidemics. In these countries, it is imperative to rapidly detect and contain the virus at points of entry to prevent community transmission and health systems from being overwhelmed (Lancet 2020). In the United Arab Emirates, the first case of coronavirus infection was confirmed on January 29, 2020 (MoHaP, 2020; Moonesar et al. 2020). With cases continuously growing, questions arise regarding the sufficiency of existing measures and the capacity of the health system to respond efficiently to the growing demands.

*As of April 29 2020,  
the COVID-19 pandemic registered 3,220,830 cases,  
with 228,239 deaths and  
1,000,983 recovery globally, affecting 210 countries and territories (WorldoMeters)*

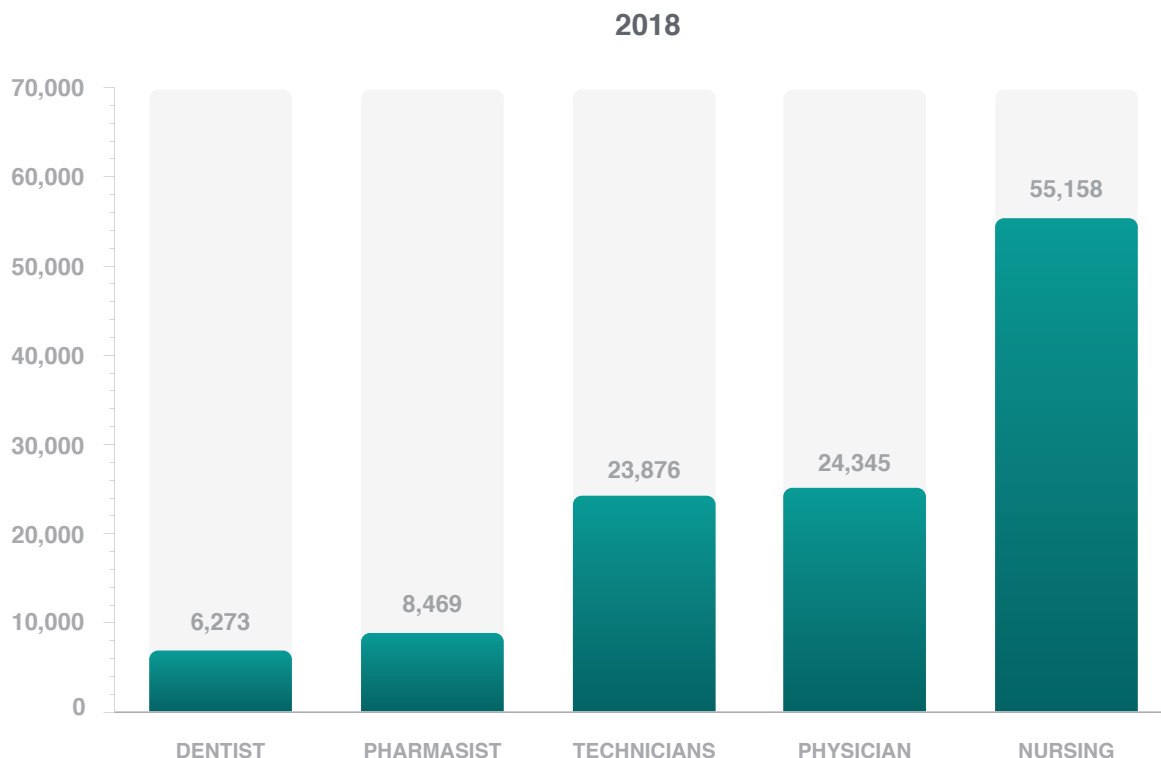


# United Arab Emirates Context

## The UAE Health System

The UAE government aspires to build a world-class health system to improve the quality of healthcare and the health outcomes for its population. To achieve this, it has implemented extensive health system reforms in the past 10 years; including the crisis and disaster management plans during the EXPO2020 (Moonesar et al. 2018). The UAE's mortality rates have increased over the past few decades and the economic growth has allowed more investment in the healthcare sector. UAE has been working on improving access to care as part of its 2021 strategy including the increase of the number of beds, healthcare workers over the last decade. The UAE's health system is to support and respond to health needs of both nationals and expatriates.

Figure 1 showing the UAE Clinical Manpower (2018)



Source: Ministry of Health and Prevention

The UAE is actively expanding its national healthcare system to meet the growing needs of its people and support economic diversification, with leading worldwide medical centres, corporations, and academic institutions playing vital roles in the process. All seven Emirates provide comprehensive healthcare services to their citizens and residents, and are rapidly building healthcare infrastructure inclusive of hospitals and clinics (reference to Tables below), while simultaneously developing the local workforce and competencies. Healthcare services in the context of the UAE is the total of public and private services, and institutions provided by UAE to care for the health of its population (in general), whether in its sector or within the private sector. It includes all hospitals, Clinics, Pharmacies and Human resources from doctors, nurses and all who work in this field.

**Table: Government (Public) Health Services Statistics (2010-2017)**

	2010	2011	2012	2013	2014	2015	2016	2017
<b>No. of Hospitals</b>	32	33	33	34	38	38	39	45
<b>No. of Beds</b>	6,393	6,465	6,354	6,100	6,564	7,022	6,865	7,232
<b>No. of Clinics &amp; Centers</b>	129	138	127	126	127	124	149	149
<b>No. of Physicians<sup>1</sup></b>	4,702	5,105	5,224	7,076	7,453	6,952	7,018	8,322
<b>No. of Dentists<sup>1</sup></b>	490	606	583	634	787	737	751	841
<b>No. of Nurses<sup>1</sup></b>	13,123	13,554	13,974	15,442	17,464	16,832	16,832	20,480

**Source: Ministry of Health and Prevention**

*Note1: The clear difference in doctors, dentists and nursing is the result of the data of the Health Authority in Abu Dhabi between 2014 and 2015.*

**Table: Private Sector Health Services Statistics (2010-2017)**

	2010	2011	2012	2013	2014	2015	2016	2017
<b>No. of Hospitals</b>	53	56	65	73	78	88	93	96
<b>No. of Beds</b>	2,436	2,627	3,281	3,660	4,051	5,412	5,725	6,080
<b>No. of Clinics &amp; Centers</b>	2,521	3,146	3,350	3,531	3,866	4,228	4,522	4,819

<b>No. of Physicians<sup>1</sup></b>	8,069	7,751	8,275	9,246	10,932	13,529	15,177	14,785
<b>No. of Dentists<sup>1</sup></b>	2,489	2,394	2,560	2,547	3,222	4,179	4,414	4,848
<b>No. of Nurses<sup>1</sup></b>	8,648	11,996	13,541	15,281	19,014	29,323	35,324	33,435

**Source: Ministry of Health and Prevention, UAE Federal Competitiveness Statistics Authority**

*Note1: The clear difference in doctors, dentists and nursing is the result of the data of the Health Authority in Abu Dhabi between 2014 and 2015*

The review of UAE health infrastructures & services Statistics for the period of 1970-2017 is illustrated in Table below.

**Table Review of Health Infrastructures & Services Statistics (1970-2017)**

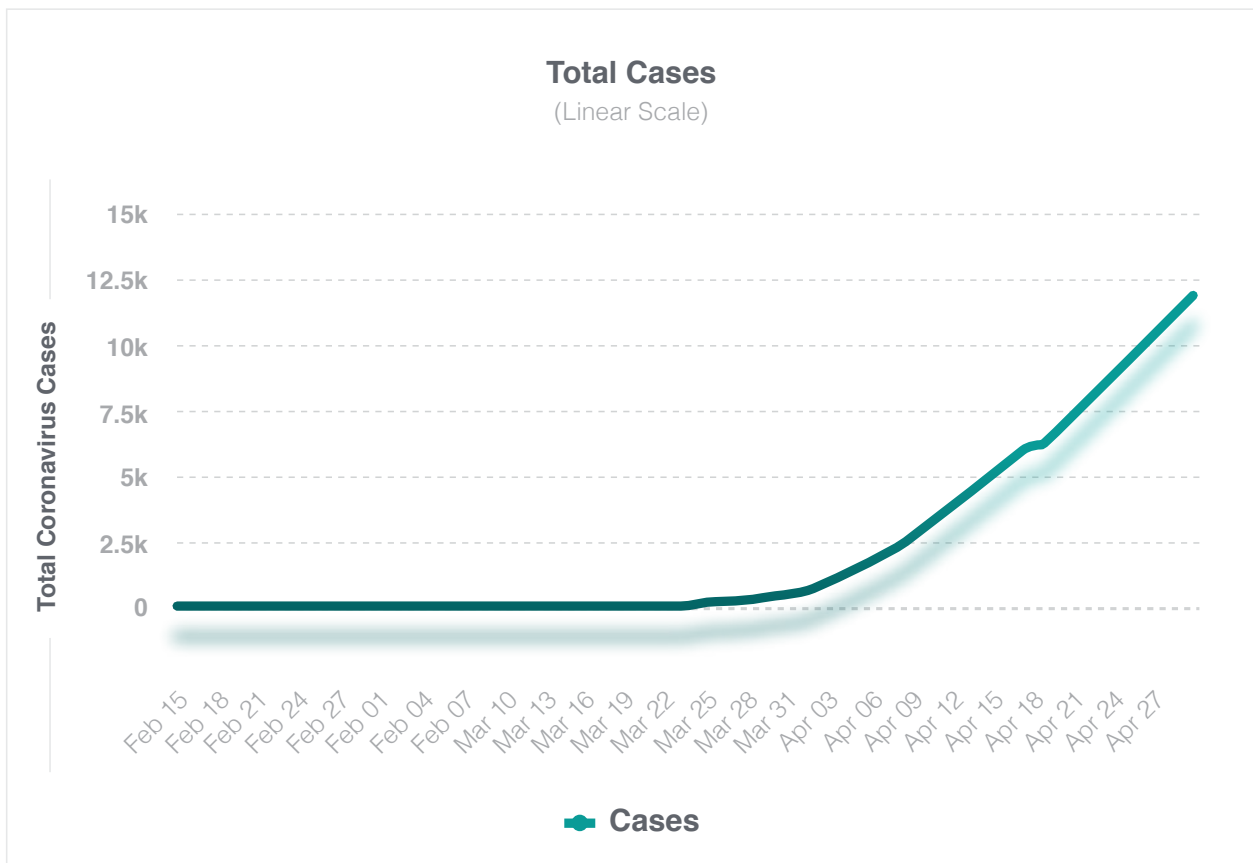
Years		1970	1980	1990	2000	2015	2017
<b>Population</b>		580,000	1,040,000	1,844,000	3,108,000	9,154,000	9,304,277
<b>Hospitals</b>		7	20	29	30	126	143
<b>Hospital Beds</b>	<b>Total</b>	700	3,000	4,300	4,473	12,434	13,312
	<b>Population/Bed</b>	1/1500	1/3500	1/4200	1/6900	1/736	1/699
<b>Health Centers</b>		21	65	90	115	4,352	4,968
<b>Physicians</b>	<b>Total</b>	200	1,000	1,500	2,350	20,481	23,107
	<b>Population/Physicians</b>	1/2900	1/932	1/1230	1/1322	1/447	1/402
<b>Nurses</b>	<b>Total</b>	1,000	3,300	4,600	6,300	46,064	53,915
	<b>Population/Nurses</b>	1/580	1/315	1/400	1/490	1/199	1/172

**Source: Ministry of Health and Prevention; World Health Organization; UAE Federal Competitiveness Statistics Authority**

## COVID-19 UAE Situation

In the United Arab Emirates, the first case of COVID-19 was confirmed on 29th January 2020: A Chinese family on holiday in the UAE are the first people in the Middle East to be given positive coronavirus diagnosis (MoPaH, 2020). The mother, father, nine-year-old girl and grandmother from Wuhan were confirmed to have the virus after visiting a local health clinic, a week into their trip. They arrived in the Emirates on January 16 and took the grandmother to a doctor with flu-like symptoms on January 23, a top health official said. Officials retraced the family's steps to find out with whom they came into contact. At this time, the UAE had issued an advisory with illustrative context on how the 2019-nCoV coronavirus spreads and ways you can protect yourself.

Figure 2: Total Coronavirus Cases in the United Arab Emirates (WorldoMeters, 2020)



As of April 29, 2020 (end of day), 11,929 cases of coronavirus have been confirmed with a death toll of 98 cases (data from worldometer.com) (Figure above). The UAE has conducted over 1,022,326 COVID-19 tests among UAE citizens and residents over the past two months, in line with the Ministry of Health and Prevention's plans to intensify virus screening in order to contain the spread of COVID-19. (gulfnews, 2020 April)

The accelerated investigative measures resulted in the detection of 549 new coronavirus cases (April 29) among various nationalities, all of whom are receiving appropriate care. The total number of infections in the country to date is 11,929 according to a MoHaP's statement. The UAE Ministry of Health and Prevention (MoHaP) also revealed that the fatalities due to COVID-19 all had some pre-existing chronic illnesses or some complications.

## COVID-19 Detection & Testing

COVID-19 detection and testing are occurring via mechanisms, though walk-ins, community interventions, drive-in and at the airports (MoPaH, 2020). The centres carry out screening as per the international guidelines issued by the Centre for Disease Control (CDC), the World Health Organization (WHO) and used by UAE health authorities. This includes anyone who is symptomatic (cough or fever or shortness of breath), has had close contact with a confirmed or suspected COVID-19 case, or a travel history within the last 14 days. In addition, testing is available for particularly vulnerable groups including: pregnant women, people above the age of 65, or those with comorbidities such as hypertension, diabetes, cardiovascular diseases, or those with a compromised immune system such as cancer and a history of taking immune-suppressants and severe acute respiratory illness. The UAE Government has announced that the number of COVID-19 tests has broken the one million mark, reaching a total of 1,022,326 screenings as part of the national plan to intensify coronavirus detection as of April 25, 2020. If tested positive, patients are advised to strictly isolate themselves at home and avoid interactions with others. The healthcare professional team will contact the infected individual in a short while for further procedures.

For example, the Dubai Health Authority (DHA) has set out guidelines on when, where and how to get a coronavirus test in Dubai. Continue reading to learn more about getting tested for Covid-19 in Dubai. With the spread of coronavirus in the UAE, DHA has published guidelines on how individuals with coronavirus symptoms can seek medical help. These guidelines were also issued to help curb panic and fear among the citizens by clarifying that not everyone needs to take a coronavirus test in Dubai (public and private hospitals and centers). The Covid-19 test in Dubai is priced at AED 112 (approximately \$30 USD) for the member registration at the hospital. As per these specific instructions, one can get tested at DHA Primary Health Centres and private healthcare facilities across the emirate:

Public Sector Healthcare Testing Facilities	Private Sector Healthcare Testing Facilities
<ul style="list-style-type: none"><li>• Al Barsha Health Centre, Al Barsha 3</li><li>• Nad Al Hamar Health Centre</li><li>• Al Safa Health Centre</li><li>• Al Badaa Health Centre, Sheikh Zayed Road</li><li>• Al Mankhool Health Centre</li><li>• Al Lusaily Health Center</li><li>• Al Khawaneej Health Center</li><li>• Al Towar Health Center, Al Towar 1</li><li>• Nad Al Sheba Health Center</li><li>• Al Mamzar Health Center</li><li>• Al Mizhar Health Center, Al Mizhar 1</li><li>• Za'abeel Health Center, Za'abeel 1</li><li>• Senior Happiness Centre, Al Mamzar</li></ul>	<ul style="list-style-type: none"><li>• Emirates Hospital</li><li>• Mediclinic</li><li>• MedCare</li><li>• Aster Hospitals in Dubai</li><li>• NMC Healthcare</li><li>• Thumbay Hospital</li><li>• Medeor</li><li>• Saudi German Hospital</li><li>• American Hospital Dubai</li><li>• Canadian Specialist Hospital</li><li>• King's College Hospital Dubai</li><li>• Zulekha Hospital</li><li>• Al Zahra Hospital</li></ul>

## Testing at Airports

Emirates Airlines in coordination with Dubai Health Authority (DHA) has been introducing additional precautions. For instance, passengers on recent flight to Tunisia were all tested for COVID-19 before departing from Dubai. Emirates is the first airline to conduct on-site rapid COVID-19 tests for passengers. The quick blood test was conducted by the Dubai Health Authority (DHA) and results were available within 10 minutes. This test was conveniently done at the Group Check-in area of Dubai International Airport Terminal 3.

## Drive-through Testing

Testing for COVID-19 is being done at drive-through centres in Dubai and Abu Dhabi. Open from 8am to 6.30pm (UAE time) daily for both nationals and expatriates, the centre enables members of the public to do a five-minute test free of charge without having to leave their car. Test results are available in 48 hours. The drive-through facility, with a capacity of more than 250 tests per day, supports efforts to protect the health and safety of the community by giving people an easily accessible centre to test for COVID-19. The centre caters to senior citizens; pregnant women; people of determination; people with chronic diseases; and people with COVID-19 symptoms. Free tests are made available to UAE nationals and expatriates at the COVID-19 drive through centres.



## Key Measures taken to combat the spread to date:

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- February 2020:**
- Early February: The preparedness of health institutions in both the public and private sectors have been enhanced with isolation wards allocated in all of them. Laboratories in government institutions were also readied for testing the virus

In addition, the level of preparedness at the airports have been upgraded with enough quantities of thermometers were ensured at the border crossings and airports

- On the 11th of February: The Minister of Health and Prevention has stressed that the UAE was among the first countries that stocked up sufficient quantities of materials required for state-of-the-art check-ups to detect the novel Coronavirus including adequate reserves of necessary medical supplies such as surgical masks, medical gloves, goggles, and protective clothing and human resources (more than 500 staff members trained on communication, medical investigations and logistical support related to combating the virus).
  - On Feb 26, UAE implemented mandatory quarantine for patients with COVID-19.
  - On Feb, 28, UAE tour 2 cyclists from Italy positive for COVID19 and quarantine implemented at two hotels in Abu Dhabi
- 

- March 4, 2020**
- The UAE Ministry of Education announced the closure of all schools and higher education institutions in the UAE for four weeks, as precaution against Covid-19
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- March 5, 2020**
- The national disinfection program entailed a complete sterilization of: Metro services, public transport, public utilities. In addition, 600 schools will undergo a rigorous deep clean during the entire month of March.
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- March 6, 2020**
- Mandatory temperature checks and nasal swab for passengers coming from affected countries
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- March 7, 2020**
- The ministry begins to use social media to inform people in aspects of social distancing
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- March 9, 2020**
- The use of the Wareed system was announced at health facilities in Dubai and the Northern Emirates. The system was designed to help doctors and healthcare workers detect potential cases of coronavirus during medical appointments
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- March 13, 2020**
- All senior citizens advised to stay at home & avoid crowded places
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**March 15,  
2020**

- Remote working was activated for two weeks for select categories of public sector employees in the federal authorities

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- The department of Economic Development directed all cinemas, theme parks, amusement and electronic game centers, fitness gyms and spring camps licensed in Dubai to halt their activities and services starting from March 15 till the end of March 2020
  - All non-urgent surgeries postponed until March 31
  - All public beaches closed
  - Shisha cafes closed. Spas and salons closed

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**March 16,  
2020**

- Abu Dhabi Executive Council launches Ghadan 21 initiatives: 50 billion Dirhams (dhs) three-year stimulus package
- No parties or weddings until the end of the month
- Pharmacies to deliver medicines straight to resident's doorstep

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**March 17,  
2020**

- Retailers reduced their opening hours from midday to 8pm only - as opposed to their regular 10am to 10pm timings
- 
- As of March 17, 2020: The UAE Civil Aviation Authority announced that all scheduled passenger flights to and from the following countries have been temporarily suspended until further notice: Bahrain, Iraq, Iran, Italy (except for Rome), Saudi Arabia, Kuwait, Lebanon, China (except for Beijing), Syria, Turkey.
  - UAE temporarily suspends the issuance of entry visas except for diplomatic passports
  - UAE calls on citizens abroad to return to the country
  - UAE looks strict measures to warn people against circulating rumours related to covid-19

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**March 18,  
2020**

- Mandatory 14-day quarantine for anyone coming to the UAE
- Friday congregational prayers suspended for 4 weeks

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**March 19,  
2020**

- UAE suspended entry of all valid visa holders who are out of the country. All pre-approved visas cancelled. Issuing of work permits stopped.
- The Ministry of Interior announces that vehicle owners could renew car registration online

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**March 22,  
2020**

- All primary and secondary schools in UAE began virtual classes
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**March 23,  
2020**

- His Highness Sheikh Mohammed bin Zayed al Nahyan ( Abu Dhabi prince) directed Abu Dhabi Judicial Department to halt all rental property eviction cases along with procedures like imprisonments, clocking bank accounts. seizure of vehicles for two months.
- Restaurants only allowed home delivery service.
- Family cars asked to use a maximum of 3 individuals per vehicle.

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**March 24,  
2020**

- Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai and Chairman of the Dubai Executive Council, launched the Day for Dubai app, as part of the 'Your City Needs You' campaign. The initiative called on Emiratis and expats alike to help the country's various teams working to protect the community
- 
- The Sharjah governor directed the Electricity and Water Authorities to apply a 10% discount to subscribers' bills for a 3 months period (230 million AED), to help ease the financial hardships in conjunction with the spread of the novel Coronavirus
- 
- The Dubai Municipality announced the closure of beauty salons and centers for a period of two weeks.

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**March 25,  
2020**

- All fresh food markets and commercial centres, including shopping malls, were directed to close for two weeks. Pharmacies, and food retail outlets (including cooperative societies, groceries, and supermarkets) were allowed to stay open. Restaurants were directed to limit their services to deliveries
- 
- The National Emergency and Crisis and Disasters Management and the Civil Aviation Authority also announced the suspension of all inbound and outbound passenger flights and the transit of airline passengers in the UAE for two weeks ( i.e. until April 8th.)
- 
- Private companies and commercial establishments implemented remote-work system for 80 per cent of their workforce, as per government directives
- 
- The UAE announced a socio-economic stimulus involving the injection of 100 billion UAE dirhams (\$27.2 billion) into the health sector and economy. The sum will be split into 50 billion dirhams (\$13.6 billion) from the Central Bank's own funds, which will be offered to local banks at zero interest rates to offset the slowdown in its economy.
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<b>March 26, 2020</b>	<ul style="list-style-type: none"><li>• UAE began a nationwide disinfection programme to sanitise the country as it fights the spread of the virus</li></ul>
	<hr/>
	<ul style="list-style-type: none"><li>• An online permit system was launched in Dubai, through which residents could request permission to leave their homes for essential work or purposes. Abu Dhabi and Sharjah also followed by calling on residents to apply for permits if they wanted to step out of their homes</li></ul>
	<hr/>
	<ul style="list-style-type: none"><li>• The Crisis and Disaster Management Team called on the public to comply with directives for staying at home during this critical period, and noted that violators would be subject to legal action</li></ul>
	<hr/>
	<ul style="list-style-type: none"><li>• Dubai Police activated radars to monitor motorists violating quarantine measures during the National Sterilisation Program</li></ul>
	<hr/>
	<ul style="list-style-type: none"><li>• The Ministry of Health and the Ministry of Interior launched the national sterilization program for public and private facilities, streets, public transportation, and the metro during the weekend starting from 08:00 pm on Thursday, March 26 and until 06:00 on Sunday, March 29, 2020, during which citizens movement was restricted.</li><li>• All passenger flights suspended. Cargo flights allowed</li><li>• Additional 16 billion Dirhams (dhs) to address the effects of coronavirus outbreak. bringing the total to 126 billion in the total stimulus package</li><li>• Sharjah Asset Management and investment wing said they would waive rent for Haraj and Jubail markets: all shops exempted from rent for 3 months.</li></ul>
<b>March 29, 2020</b>	<ul style="list-style-type: none"><li>• Major UAE retailers adjusted their opening hours from 8am to 8pm as per a government mandate, and due to the sterilisation programme underway in the country</li></ul>
<b>March 31, 2020</b>	<ul style="list-style-type: none"><li>• The nationwide sterilisation program was extended to April 5, 2020</li></ul>
<b>April 1, 2020</b>	<ul style="list-style-type: none"><li>• The Ministry of Human Resources and Emiratization issued a new remote work policy for private businesses. Under the policy, office-based workers must be limited to 30 per cent of the company's workforce</li></ul>
<b>April 4, 2020</b>	<ul style="list-style-type: none"><li>• A two-week 24-hour sterilisation campaign began. Residents were directed to wear face masks and gloves at all times outside the home, and follow social distancing measures. Authorities noted they would enforce strict restrictions on residents' movements during this time</li><li>• 24/7 curfew to be enforced until further notice</li></ul>
<b>April 5, 2020</b>	<ul style="list-style-type: none"><li>• Early Leave' initiative launched to enable all residents in the private sector who wish to return to their home countries to do so</li></ul>

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- Roads and Transport Authority of Dubai also suspended metro, tram and intercity bus operations until further notice

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**April 7, 2020** • Dubai Economy announced that all commercial activities, with the exception of vital and support sectors, would remain closed until April 18, 2020

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**April 7, 2020** • The Dubai Health Authority announced it has opened its first drive-through Covid-19 testing centre at the Al Nasr Club for the general public. Testing will be carried out free of charge; however, pre-booking is required. Results would be made available in 48 hours. Two more centres are expected to open in Al Khawaneej and Port Rashid

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## Key Policies, Laws, Regulations and Decrees COVID 19 related:

- 
- Ban exports of critical supplies
- 
- Business bailouts
- 
- Business fees reduction (rent, utility, permits)
- 
- Cancel/Postpone public /private/global events (concerts/conferences/games/forums)
- 
- COVID19 mobile apps / WhatsApp channel
- 
- Creation of Special Task Force COVID19
- 
- Economic advisory/ Fiscal Measures
- 
- Employment and Wage rules/ subsidy
- 
- Export Incentives (Ease of regulations for exports)
- 
- Financial injections/ Monetary Measures
- 
- Fines/ penalties / arrests - in breach of laws, policies, guides (Policing and Justice)
- 
- Freezing Loan payments (personal)
- 
- Handling and disposal of death COVID19 cases
-

- 
- Handling and disposal of Hazardous Materials
- 
- Household reliefs (food, early child care reliefs, vulnerable populations, elderly groups)
- 
- Mental health services / measures
- 
- Personal loans
- 
- Postponing financial year & Tax Rebates
- 
- Protective gear piracy (including sanitation products)
- 
- Stimulus Packages- government / federal levels/ nationwide
- 
- Subsidise COVID19 Treatment costs
- 
- Surveillance & Monitoring policies (drones, cameras, helicopters etc.)
- 
- Suspension/ reduction of utility bills, rent and credit card repayment
- 
- Technological policies (including VPNs, bandwidths, VoIP-voice over internet protocols)
- 
- Telemedicine measures (including telehealth; teleconsultations)
- 
- Temporary suspension of all semi-urgent elective surgery
- 

## Need to scale up efforts

The UAE government and stakeholders have recognised that scaling up existing efforts is crucial at this current situation, given the expected exponential growth of confirmed cases. This however will pose challenges on the existing health system across the UAE. There is some evidence of scaling up including:

- Increasing bed capacity
- Building of field hospitals
- Building of testing centres
- Use of advanced technological devices such as drones for sanitation, the Police use smart helmets in battle against coronavirus.

- Launch of volunteer programs for public engagement.
- Police use helicopters to deliver COVID-19 message- Stay at home
- Authorities use telecommunications networks to deliver COVID-19 message – Stay Home

## What are other countries doing?

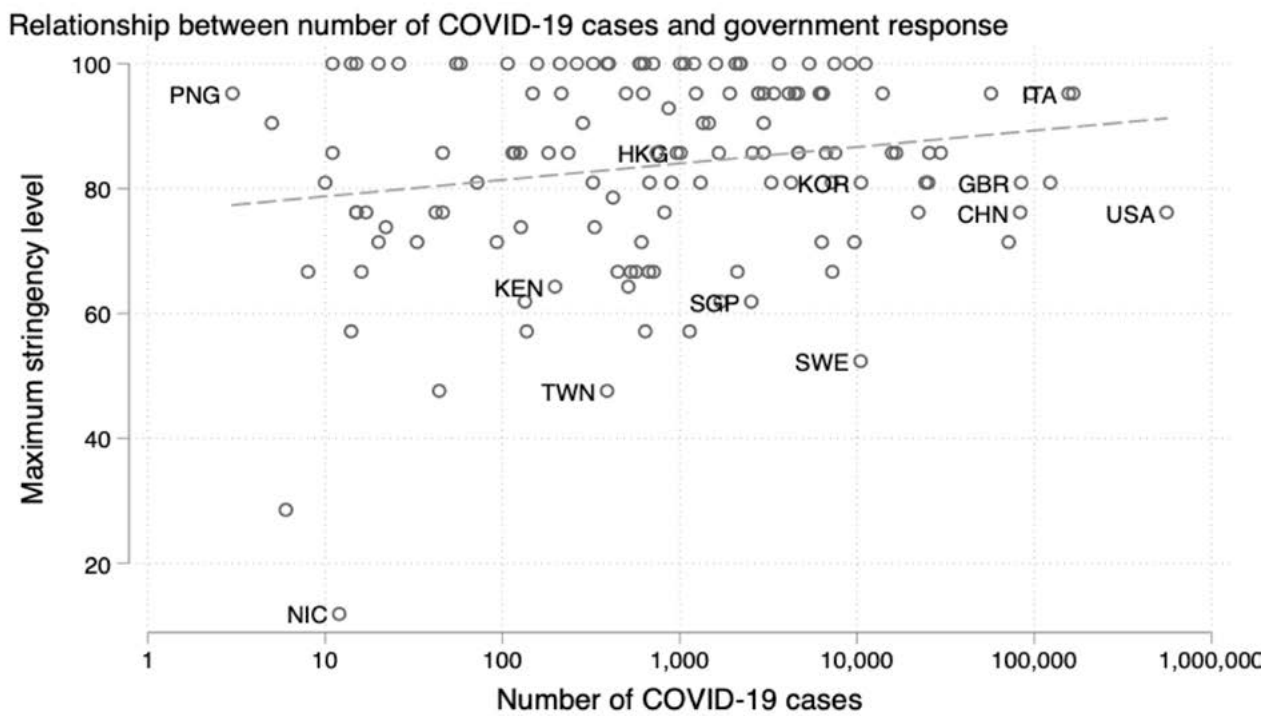
As case numbers rise daily, the world continues to face the global challenge of the Covid-19 pandemic (Figure 3). It is important that countries should collaborate and formulate optimal plans from international best practice to combat this global health threat. This section of the report compares government responses and policy strategies taken by China, Singapore, Taiwan, Rwanda, USA, Sweden and Switzerland.

**Figure 3. Coronavirus cases around the World**



To create a comprehensive global comparison of policy responses, the Blavatnik School of Government at Oxford University has launched the Oxford Covid-19 Government Response Tracker (OXCGR) and is continuously updating global data on government responses and modelling the government responses against confirmed case/mortality outcomes. Using a set list of indicators, the team created a composite index for cross-national comparisons. One of the models created was the 'Stringency-Risk Ratio' which aims to show the composite stringency of national policies relative to their risk (cases) and relative to other countries. The model uses the following indicators; policies surrounding closures of schools, closures of workplaces, cancellation of public events, reduction of public transport, restrictions on internal travel and restrictions on international travel (Hale et al. 2020).

Figure 4: Stringency Risk-Ratio



Data as at 13 April 2020. Individual countries may be several days older.  
Source: Oxford COVID-19 Government Response Tracker. More at: covidtracker.bsg.ox.ac.uk



Using the underlying data presented in Figure Four, we can extract information for the countries of focus in this report. In line with Figure Four, the data is as of April 13th 2020 but remains valuable as a comparative view of the policy responses relative to the evolving risk.

Country	Stringency Level	Confirmed cases
China	48	83,209
Singapore	81	2,532
Taiwan	38	388
Rwanda	100	126
USA	76	551,826
Switzerland	81	25,220
Sweden	52	10,483
UAE	95	4,123

The researchers that created the 'Stringency Index' make note that it is not a measure of appropriateness or effectiveness of a government policy. Likewise, it does not comment on how policies are enforced nor can it explain national characteristics that affect the spread of Covid-19. However, it is a systematic way to look at cross-national comparisons of policy responses (Hale et al, 2020).

Using a modified but related approach, this report also seeks to understand the government measures to manage the spread of Covid-19 in a comparative manner. Seven countries with different geographic, economic and social attributes have been selected to give a wide view of the policies adopted by other countries. The indicators chosen for this report are; transparent communication, enhanced healthcare protocols, changes/additions to legislation, social distancing advice/rules, public education measures, closure of public areas, 14-day quarantine (upon entering a country), limiting size of gatherings, tracing of known cases, prohibition of non-essential movements, increased testing available to the public, travel restrictions, early screening at airports and punitive measures. Noting that countries may have varied policy responses within these categories, for comparative purposes Figure 5 provides a visual perspective. The responses are classed as some responsive measures, active responsive measures, comprehensive responsive measures and no responsive measure reported. A detailed overview of the country responses to each measure can be found in upcoming documents.

Figure 5: Overview of Measures adopted by other countries

	China	Singapore	Taiwan	Rwanda	USA	Sweden	Switzerland	UAE
Early recognition	Red	Green	Green	Grey	Red	Red	Yellow	Green
Transparent communication	Green	Green	Green	Green	Yellow	Green	Green	Yellow
Changes/ additions to legislation	Red	Red	Grey	Red	Yellow	Grey	Yellow	Green
Public Education Measures	Green	Green	Green	Green	Green	Red	Green	Green
Quarantine (14 days upon arrival)	Green	Green	Green	Green	Green	Red	Green	Green
Tracing of known cases	Green	Green	Green	Red	Red	Red	Yellow	Yellow
Increased testing of public	Yellow	Green	Green	Grey	Yellow	Red	Grey	Yellow
Early screening at airports	Green	Green	Green	Green	Yellow	Red	Grey	Green
Hospital preparedness measures	Yellow	Yellow	Yellow	Red	Yellow	Yellow	Yellow	Green
Enhanced healthcare protocols	Green	Green	Green	Red	Red	Yellow	Green	Green
Social distancing advice	Green	Green	Red	Yellow	Yellow	Red	Green	Green
Closure of public areas	Green	Green	Red	Green	Red	Grey	Green	Green
Limiting size of gatherings	Green	Green	Red	Green	Red	Red	Green	Green
Prohibition of non-essential movement	Green	Green	Grey	Green	Red	Grey	Yellow	Green
Travel restrictions	Green	Yellow	Yellow	Green	Red	Yellow	Yellow	Green
Border closures	Red	Yellow	Yellow	Green	Red	Yellow	Green	Green
Punitive measures	Grey	Green	Yellow	Grey	Red	Green	Green	Green

Red	Some responsive measures	Green	Comprehensive responsive measures
Yellow	Active responsive measures	Grey	No responsive measures reported

Government responses are nuanced and are often a function of the political system, economic standing and societal structure. Additionally, as this is a rapidly evolving situation, it is premature to say that any government has yet had success. The comprehensive approach taken by the UAE is similar to that of Singapore and to an extent Switzerland. While there does appear to be a relationship between stringent measures and slowing of the virus, countries like Taiwan and Sweden have taken less stringent approaches and at this time have moderate to low case numbers.

Taiwan is a particularly interesting outlier with notably low case numbers. The government was very quick to take action on the basis of reports from Wuhan about the virus but also had an existing level of preparedness. Based on lessons from the SARS epidemic, Taiwan already had a government control centre, clear ways to message the population, hospital readiness and testing capacity. Additionally, the population of Taiwan had previous experience of an epidemic and therefore have been voluntarily cooperating with the measures imposed by the government. (Wang et al, 2020)

While the responses of Taiwan and the UAE have been different, there are some similarities that point towards better outcomes. We can broadly say the following policies have brought about better outcomes in terms of case numbers and mortalities:

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1. Prompt response
  2. Transparent and user-friendly information provided to the public
  3. Education campaigns
  4. Early identification of cases and Contact Tracing
  5. Wide Scale Public testing
  6. Social distancing advice that is adhered to by the public (either voluntarily or through strict enforcement)
  7. Ability to scale up capacity for isolation and hospital care
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# Roadmap for action

This roadmap for action has been developed based on several documents and country experiences, including the Global Health Index for Preparedness created by a panel of experts (2019), the Epidemic Preparedness Index from Oppenheim et al (2018) and information from the World Health Organization, Ministry of Health (MOH) and Dubai Health Authority (DHA). The categories used to assess the roadmap for action are from the Global Health Index Report: National level (Prevention, Detection & Reporting & Rapid Response), Community level (Prevention, Detection & Reporting & Rapid Response), Health Care System level (Prevention, Detection & Reporting & Rapid Response), Compliance with International Norms, and Risk Environment.

According to Ferguson et al, the priority of action is suppression by reversing the epidemic growth, reducing case numbers to low levels and maintaining that situation indefinitely (Ferguson et al, 2020). While general guidelines work for most countries, each country has its unique context that dictates the practicality of different approaches and the challenges that may be faced. In the case of the UAE, the high GDP and relatively small size may facilitate surveillance, procurement and control, however the vast majority of the population is expatriate which raises the question of accessibility to health services and testing for COVID19, as well as the high volume of travel into and through the country, risking further importation of cases after relaxing distancing measures.

## 1. National level

Keeping in mind the decentralized nature of operations in the UAE, it is vital that leadership, planning and information sharing be centralized and unified in the face of a threat such as COVID-19. A national public health emergency management mechanism should be activated with engagement of relevant ministries such as health, education, travel and tourism, public works, environment, social protection, and agriculture, to provide coordinated management of COVID-19 preparedness and response. This mechanism should be backed with and responsible for the necessary legislations, evidence for management, funding and information generation in order to be the sole reference for action and information.

Furthermore, close monitoring of markets for prices of protective equipment and necessities should be maintained.

Step	Actions to be taken
1	<input type="checkbox"/> Activate multi-sectoral, multi-partner coordination mechanisms to support preparedness and response
	<input type="checkbox"/> Engage with national authorities and key partners to develop a country-specific operational plan with estimated resource requirements for COVID-19 preparedness and response, or preferably adapt, where available, an existing <i>Influenza Pandemic Preparedness Plan</i>
	<input type="checkbox"/> Conduct initial capacity assessment and risk analysis, including mapping of vulnerable populations
	<input type="checkbox"/> Begin establishing metrics and monitoring and evaluation systems to assess the effectiveness and impact of planned measures
2	<input type="checkbox"/> Establish an incident management team, including rapid deployment of designated staff from national and partner organizations, within a public health emergency operation centre (PHEOC) or equivalent if available
	<input type="checkbox"/> Identify, train, and designate spokespeople
	<input type="checkbox"/> Engage with local donors and existing programmes to mobilize/allocate resources and capacities to implement operational plan
	<input type="checkbox"/> Review regulatory requirements and legal basis of all potential public health measures
	<input type="checkbox"/> Monitor implementation of CPRP based on key performance indicators in SPRP and produce regular situation report
3	<input type="checkbox"/> Conduct regular operational reviews to assess implementation success and epidemiological situation, and adjust operational plans as necessary
	<input type="checkbox"/> Conduct after action reviews in accordance with IHR (2005) as required
	<input type="checkbox"/> Use COVID-19 outbreak to test/learn from existing plans, systems and lesson-learning exercises to inform future preparedness and response activities

Country-level coordination, planning, and monitoring. COVID-19 Strategic Preparedness and Response Plan: Operational planning guidelines to support country preparedness and response. WHO, 2020.

### Specific action areas:

#### Prevention:

- Restriction of transmission from symptomatic and asymptomatic cases by broad-scale social distancing, in order to reduce surge of cases and load on health services, flatten the curve and give time for development of a vaccine (Kraemer et al, Anderson et al, Chen et al).
- Consider protecting most-at-risk populations (over 60, comorbidities, immunosuppressed) separately either within homes or within neighbourhoods/communities (Dahab et al, Ferguson et al 2020)
- Mass masking of the public and boost local production of disposable masks and other protective equipment (Leung, Lam and Chan, 2020)

- Ensure protection of all front-line workers (health, security, police force, other social services) with free provision of N95 masks, PPE, and proper training
- Consider home isolation of cases for up to 20 days rather than 14 due to possible prolonged viral shedding (Zhou et al, 2020.) For those that have larger families or live with vulnerable populations, they should be provided with the option (free of their will) to isolate in a comfortable free facility: dormitories or hotels may be appropriate for this (Gottlieb et al, 2020) Technology (such as the helmet gears for detection, drive-through facilities, on the spot COVID-19 testing in specific communities) should be used to monitor these cases.
- Consider intermittent distancing measures over 3-5 months with periods of relaxed measures based on trends in disease surveillance (Ferguson et al, 2020) and/or return of sero-positive cases to work
- Continuous education of the public about handwashing and hygiene techniques through relevant communication channels for all socioeconomic and educational levels
- Maintain isolation and monitoring of international travellers, and increase from 14 to 20 days. Technology or an app can be used in order to do this, for example, the enhance of the current DHA COVID-19 app and the MOHaP app for COVID-19 awareness; in addition to integration with the telehealth apps as well.

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**Detection:**

- Set-up detection and surveillance stations at all entry points and establish an interoperable electronic real-time reporting system
  - Consider blanket screening of all/some populations due to high rate of asymptomatic carriers (Day M a, Day M b, 2020)
  - Identify vulnerable groups (labour workers living in crowded conditions) and tailor access to screening and treatment accordingly
  - Boost wide-spread easy accessibility to testing and free of charge/ or at a very low cost (health insurance implications?) with re-testing for suspected cases
  - Expand testing centers and sub-national laboratories to decentralize testing and reduce pressure on health facilities under the supervision of the COVID-19 national reference laboratory (WHO, 2020)
  - Local production of testing kits to reduce reliance on outside sources and shortages due to possible supply chain disruption (Gulf News, 2020).
  - Encourage self-reporting of symptoms by exploring incentive schemes (rather than fines for failure to report), paying for days of work lost due to quarantine
  - Define 'close contacts' in terms of distance and duration of exposure and trace accordingly (Keeling, Hollingsworth and Read, 2020)
  - Serological testing for positive cases and monitoring of post-infection immunity
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- Response:**
- Regular revision of bed status/staff availability
  - Public/private sector coordination
  - Health worker protection, avoid work overload and long exposure to cases (Wang et al b, 2020)
  - Proper training of health workers in preparedness and response to the disease while ensuring supervision and guidance (Wang et al b, 2020)
  - Monitoring and evaluation: Conduct regular operational reviews to assess implementation success and epidemiological situation, and adjust operational plans as necessary (WHO, 2020)
  - Monitor implementation based on key performance indicators and produce regular situation reports
  - Ensure containment measures and records for biosecurity in addition to training personnel on biosecurity practices in all laboratory sectors (JEE).

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- Risk communication and community engagement:**
- All information to originate from the central mechanism body, with designated trained spokespersons and broadcasting of regular situational updates on number of cases, deaths, any change in detection/isolation protocol, etc.
  - Develop a mobile application which is freely available to users and easy to use to dispense information, collect epidemiological data and GPS tracking of cases and contact tracing
  - Make use of all communication methods including social media, regular SMS messages to the public, announcements via mosque microphones, radio and television.
  - Telecommunication companies (Etisalat & Du) to help citizens (nationals and expatriates) by avoiding disruption of services and keeping internet connection for all personal and business accounts.
  - Diversify and expand communication plan in order to address social determinants of communication inequalities in order to increase likelihood of successful communication (Lin et al, 2014).
  - Identify and engage a national body to relay information, encourage compliance to distancing measures and self-reporting of symptoms
  - Timely sharing of information and collaboration with relevant organizations (Peeri et al, 2020).
  - Create a National Surveillance System supported by and coordinated by the public health sector and health care workers.
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## 2. Community level:

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### Prevention

(WHOa, 2020),  
(WHOe, 2020)

- Social Gatherings & Social Distancing: Strict measures to continue in regard to large gatherings (and groups) limited to fewer than 20 people. In these situations, social distancing (i.e. Maintaining a 2-meter distance from one another) will be adhered to in these situations
  - School Closures: Extension of school closures until end of June, and further (as deemed necessary) to ensure that high contact settings do not create a surge in cases.
  - Limit non-essential movement of people: Only essential movement of people to and from essential work with movement permits. Limit grocery stores hours and pharmacy hours and number of people that visit by using the permit system. Grocery and Pharmacy home delivery should be available 24 hours. Once a permit is issued it should connect to technology to monitor movement and contact trace in case needed
  - Workplaces should encourage and support employers to continue to work remotely. For offices that need staff, staff should be kept at a low number and rotated so as to avoid possible virus contamination. All workplaces should continue to adhere to physical distancing measures.
  - Further vulnerable populations should have access to free grocery & pharmacy deliveries. Grocery stores should be exclusively open for the vulnerable populations from 7 am – 9 am every other day.
  - Collaboration between private clinics, testing centres, public hospitals and health authorities to coordinate rapid response of test results, this will prevent further spread of COVID-19. These results should be available via a mobile phone application (technology) to the individual.
  - Home Quarantine for 14 days (or until symptoms last) for those who have flu-like symptoms and individuals who may have been exposed to the pathogen or identified by contact tracing. Quarantine/Isolation should be made available to non-symptomatic individuals in a government facility in order to further control contact tracing and prevent transmission.
  - Strict & Clear measures on wearing face masks in the community and during all outings for essential needs: N95 masks should not be used in the community, as they should be saved for medical staff and front-line workers. If a surgical mask is not available one should place a homemade cloth mask over their nose and mouth to protect themselves and the community.
  - Regular disinfection (every 30 minutes) and daily sanitation of publicly used areas, such as elevators, handrails, door knobs/handles, and Automated Teller Machines (ATM). This will prevent the virus from remaining on contact surfaces.
  - Modified closure of public spaces such as theme parks, beaches, cinemas, and shopping malls. Parks and benched areas should remain closed to prevent people from congregating.
  - Signs and posting in various public spaces encouraging and reminding the community of social distancing, and appropriate nose and mouth hygiene and proper handwashing. There should be markers on the floors in clinics, grocery stores, money exchange centres, banks and any other areas where cues tend to form. These markers will be placed 2 meters apart to indicate physical distancing.
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**Detection**

(WHO,2020)

- Easy and quick access to testing in all neighbourhoods, clinics, and community centres; and quick retrieving of test results. Technology can be used for ease of test result retrieval via an app.
- Create UAE's own testing kit and expand the number of testing platforms with a goal towards a home testing kits to become available in the near future.
- Free testing timings in multiple locations and neighbourhoods by a mobile unit; especially in neighbourhoods where there are many laborers or workers living together in constricted spaces.
- Establishing drive through and quick -no wait- testing centres in central locations and no medical locations for community member to access without burdening the community clinics

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**Response**

(WHO, 2020)

- Providing community households and schools (once they partially open) with appropriate masks and gloves for self-protection. This should be provided to the community/school facilities at no cost. There should be distribution of free masks through all areas
  - Schools should provide educational videos to students, in language appropriate for all ages, on prevention measures, proper hand washing techniques, and information about COVID-19 and how to protect themselves and their family
  - When Schools resume, they will need to make sure temperature checks are conducted daily either at home or at school (by the school nurse), and there should be alternate day attendance and alternate day remote learning for students to decrease interaction and maintain physical distancing.
  - Weekly texting to all citizens to remind them of proper hygiene and seriousness of maintaining physical distancing and movement restrictions.
  - Creative ways to engage and build community by using social media to create art propaganda and share photographs and stories of quarantine under *#UAEfrommylens*
  - Closure of community streets at certain times of the day to limit movement of cars (people).
  - All mosques remain closed for congregational prayer and use of loudspeakers in mosques to announce reminders for physical distancing and proper hygiene after each prayer call.
  - Temperature screenings at entrances of shopping centres and grocery stores.
  - Vending machines for face masks, antibacterial hand wash gel, and PPE available at all parking lots and at all public locations. These are activated by smart touch pay features.
  - Antibacterial gel dispensers available at all entrances and exits.
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### 3. Healthcare facility-level initiative

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#### **General Activities**

- Develop a pandemic safety plan and appoint a safety officer to modify as required. Make sure a copy of the hospital COVID-19 preparedness plan is available at the facility and accessible by staff (CDC,2020)
- Ensure the health facility's infection prevention and control policies are consistent with the Dubai Health Authority (DHA), MOHAP (Ministry of Health and Prevention) Circulars related to the subject of Management of COVID-19 infection in health facilities.
- Determine if the fatality management plan is sufficient for an increased volume of decedents at the facility (ASPR,2020)
- Ensure safe waste management, proper linen cleaning and utilization, environmental cleaning and sterilization of patient care equipment.
- Health Facilities have to report any suspected and confirmed cases of COVID-19 infected cases based on case definition immediately to the Preventive Medicine Section, Public Health Protection Department (DHA, 2020).

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#### **Response**

##### **Emergency Department Activities:**

- Determine screening process and location (e.g., curbside screening prior to entry, supplemental screening at intake, etc.).
- Prevent overcrowding, especially in the emergency department (DHA,2020)
- Determine how suspect cases will be isolated from other waiting patients and during ED care (ASPR,2020)
- Emphasize hand and respiratory hygiene and other infection prevention techniques through education, policies, signage, and easy availability of supplies.
- Develop referral plans for patients that do not need emergency care
- Develop care plans that reduce the number of staff caring for suspect/confirmed cases and prioritise the care.

##### **Outpatient Services/Community Health Centers/Free Standing Health Facilities Activities:**

- Ensure the delivery of non-emergency, non-urgent care remotely by a licensed provider, covering all health insurance schemes (DOH,2020)
- Ensure the delivery for patient education to their homes when reasonable. (DOH,2020)

- Consider which clinics may be converted into in-patient units (e.g., surgical centres). (ASPR,2020)
- Develop a process to limit/cancel non-essential visits which can `flex' with the demands of the COVID-19 outbreak.
- Develop staffing plans to allow for expanded service hours when needed. Determine if outpatient locations and services should remain open if the threat is too great to staff and patients
- visitor restrictions should be implemented, the hospital has a process to allow for remote communication between the patient and visitor (e.g., video-call applications on cell phones or tablets) and has policies addressing when visitor restrictions will be lifted (CDC, 2020).
- Provide patients and families with information about stress responses, resilience, and available professional mental health/behavioural health resources.
- Provide or develop patient resources on COVID-19 including transmission, prevention, usual clinical course, risks for more severe disease, and when to seek medical care. These materials should also encourage patients to have at least a 30-day supply of usual medications on hand.

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**Healthcare  
professional  
preparedness  
and protection**

- Stay up-to-date on the latest information about signs and symptoms, diagnostic testing and case definitions for COVID-19 infection (DHA,2020).
  - Staff protection by asking staff to remain at home and notify the health facility, if the healthcare professionals themselves are unwell. (DHA,2020)
  - Admit suspected cases of COVID-19 infected cases in negative pressure room (s)/implement strict standard, contact and airborne. If a negative pressure room is not available, place patients in adequately ventilated single rooms with separate bathrooms.
  - Monitor and manage any healthcare personnel that might be exposed to COVID-19 (CDC,2020)
  - Deliver mental health support to people and health workers through multidisciplinary mental health teams established by health authorities at regional and national levels (including psychiatrists, psychiatric nurses, clinical psychologists, and other mental health workers). Specialized psychiatric treatments and appropriate mental health services and facilities should be provided for patients with comorbid mental disorders.
  - Ensure the hospital has plans to provide education and training to HCP, patients, and family members of patients to help them understand the implications of, and basic prevention and control measures for, COVID-19. All staff should be included in education and training activities. These should be available in language and reading-level appropriate to support education and training programs to HCP, patients, and family members of patients.
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<b>Prevention</b> <b>(DHA,2020)</b>	<b>Prevent Transmission in health facilities</b>
	<ul style="list-style-type: none"><li>• To facilitate the early identification of cases of suspected COVID-19 infection, healthcare facilities should encourage healthcare professionals to have a high level of clinical suspicion (DHA, 2020).</li><li>• Ensure appropriate and consistent use of PPE to reduce the spread of pathogens. (DHA, 2020).</li><li>• Ensure that environmental cleaning and disinfection procedures are followed consistently and correctly. Thoroughly cleaning environmental surfaces with water and detergent and applying commonly used hospital level disinfectants are effective. (DHA,2020)</li><li>• Patients should be placed in an isolation room with negative pressure (if available) or in an adequately ventilated, single room with separate bathroom. (DHA,2020).</li></ul>
<b>Detection</b>	<b>Managing Laboratory specimens</b>
	<ul style="list-style-type: none"><li>• Ensure that laboratories in health facilities adhere to appropriate biosafety practices and transport requirements, according to the type of organism being handled (DHA,2020).</li></ul>
<b>Consumables and Durable Medical Equipment and Supplies:</b>	<ul style="list-style-type: none"><li>• Develop and estimation plan of the quantities of essential patient care materials and equipment (e.g., intravenous pumps and ventilators, pharmaceuticals) and personal protective equipment (e.g., facemasks, respirators, gowns, gloves, eye protection, and hand hygiene products), that would be needed during at least an eight-week outbreak. (CDC, 2020).</li><li>• A plan has been developed to address likely supply shortages (e.g., personal protective equipment), including strategies for using normal and alternative channels for procuring needed resources and strategies for conserving PPE.</li></ul>
<b>Healthcare Services/Surge Capacity:</b>	<ul style="list-style-type: none"><li>• Develop a contingency staffing plan that identifies the minimum staffing needs and prioritizes critical and non-essential services based on patients' health status, functional limitations, disabilities, and essential facility operations (CDC,2020)</li><li>• Review plans for implementation of surge capacity procedures and crisis standards of care. This includes collaboration with DHA Public Health and Protection Department and Public Hospitals. (DHA2020).</li></ul>

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## Exit Strategy (After COVID-19)

The current widespread physical distancing and lock down measures taken and the ramping up of testing in the UAE have been successful in identifying new cases of COVID19. However, the average number of new cases (for the month of April) is estimated at 300 per day and rising (worldometers.info). With this number, it may still prove early for the country to ease its restriction measures.

At this point, planning a cautious and responsive 'exit strategy' is appropriate, but there remains a need for an even stronger capacity to test, retest, identify, quarantine, and to trace and isolate contacts (WHOg, 2020). In order to suppress transmission, public health and social measures should continue both at the individual and the community levels. Individuals will need to maintain movement restriction measures at their own discretion, wearing masks in public places and keeping a 2-meter distance, and international travel restrictions will continue to be implemented (Dubai Economy, 2020 April).

It is unknown how long this pandemic will continue, and the possibility of a surge of COVID19 once restrictions are lifted is likely (WHOg, 2020). It is advised that the government consider lifting restrictions when the number of new cases drop to between 40-50 per day; however, with (a) strict surveillance controls and, (b) 14-day intervals to identify the effect. In reality, even the best plan may not be enough, such as in the case of Singapore where lockdown was lifted after initial success, and then reinstated due to a surge in cases (Ministry of Health Singapore, 2020d).

Until effective pharmaceutical interventions (therapies and vaccines) are made widely available, the UAE will need to continue alternating between loosening and reinstating measures throughout this pandemic (WHOg, 2020).

*Note: Details of Exit Strategy will be elaborated further in an upcoming document.*

# Re-imagining UAE's Public Health System and Preparedness Response

COVID-19 is spreading globally and uncontrollably testing the resilience of our health care systems. A global pandemic of this magnitude will have serious economic, social and global health consequences. Furthermore, due to urbanization, international mass displacement, population movement, and climate change the emergence of future pathogens is more than likely. From a global and national level, there is a strong need for preparedness planning.

No doubt this is not the first time the world has been faced with the challenge of a biological threat: in 2001 the anthrax attack, SARS in 2003 and MERS in 2013, and Ebola in 2014. The Ebola threat in 2014, in West Africa, killed close to 10 000 people and infected 28 000. (WHO,2020). The Ebola crisis could have been avoided if the countries were better prepared, and the borders were better contained.

The COVID-19 pandemic has made countries realise that not only are we in this together, but we need to be better prepared for a fast spreading outbreak from a national, community and health care sector level. If we are not better prepared, we run the risk of global & national economic consequences, and widespread mortality and morbidity.

From a national perspective, the global pandemic has provided us with an opportunity to reassess and re-imagine our Public Health System and Preparedness on a National, Community and Health SectorLevel.

## Re-imagining the future would include the following:

- Establish one unified authorized body to lead emergency response and coordinate training and information sharing among human, animal, and environmental health professionals for outbreak preparedness and response. This body should be multisectoral including establishing operational links between security and public health authorities (from JHU Global Health Index). This body should also be responsible to produce models and initiative investigations to improve capabilities
- Measurement and testing of health security capacity by holding regular simulation exercises, with regular and transparent publication of results, as well as identifying any factors, e.g. socioeconomic risk factors that may impede response
- Build and maintain robust healthcare and public health workforce that plays a major role in biological crises, including field epidemiological training

- Establish national and regional protocols for rapidly sharing genetic materials and specimens during public health emergencies.
- Develop epidemic- and pandemic-specific preparedness and response strategies as part of routine disaster and broader national security planning efforts.
- Biosecurity, capacity to conduct effective oversight over dual-use research, emergency response operations, linking public health and security authorities, and medical countermeasure dispensing.
- Build epidemiology workforce capacity through applied epidemiology training programs, such as the field epidemiology training program, for public health professionals and veterinarians (e.g., Field Epidemiology Training Program and Field Epidemiology Training Program for Veterinarians)
- Active steps to strengthen biosecurity and biosafety including mandatory laboratory accreditation to international quality standards.
- Improve quality of immunization coverage data and data pertaining to cold chain for providers, and identify pockets of low immunization
- Harness the power of technology to enhance biosecurity response and pandemic response; and use additional resources to trace and identify cases.
- Expand investments in pharmaceutical research and development and research diagnostics, therapies and vaccines. Research and development should be used along with innovation in order to improve coordinates emergency response to the highest level
- Increase the production of the supply chain of personal protective equipment, respirators, and other health care equipment needs, to ensure and further develop the standards of crisis management care. This includes stockpiling of medical devices needed for a health crisis and local manufacturing of equipment, such as, ventilators.
- Preventative measure and appropriate directives put in place to promote and enable standards of pandemic response for schools and workplaces. This also includes teleworking, staggered shifts and other remote options available for a future pandemic response.
- Government should initiate a Public Emergency Fund for future pandemic response
- Monitoring hot spots for possible disease transmission, such as immigrant workers, construction workers & laborers, and lower middle-income housing communities.

In conclusion, the UAE health system should be re-imagined to minimize health consequences of outbreaks by being: (a) more proactive and resilient and, (b) be able to predict and quicken response to any public health challenge or crisis it may face, in an impactful manner. The United Arab Emirates, while continuously evaluating and improving its capacity at different levels, should be able to not only respond actively and effectively, but also strengthen its capacity to help other countries in a global health emergency.

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- Master's degrees in public policy and public administration;
- Executive education for senior officials and executives; and,
- Knowledge forums for scholars and policy makers.

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3. Health Policy
4. Public Leadership
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6. Sustainable Development Policy
7. Economic Policy



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*Strengthening public health policy and practice and improving health and social outcomes locally, regionally and globally.*

Founded by the Faculty of Health Sciences (FHS) at the American University of Beirut, Lebanon, the Knowledge to Policy (K2P) Center is a WHO Collaborating Center for Evidence-Informed Policy and Practice.

The K2P Center bridges the gap between science, policy, and politics; by making research evidence more accessible to a broader range of stakeholders; building institutional capacities for evidence-informed policymaking, and seizing opportunities to advocate and influence policy outcomes.

K2P produces high quality policy products that use the best available evidence written to help policymakers and stakeholders have the clearest understanding of the most important messages, options and recommendations to address pressing health and social system problems.





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