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## Infectious diseases in Yemen

Outbreaks of COVID-19, cholera, and vector-borne diseases compound the humanitarian crisis in Yemen. Talha Burki reports.

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For more on **COVID-19 in Yemen** see <https://www.msf.org/covid-19-support-desperately-needed-second-wave-overwhelms-yemen>

For more on the **humanitarian crisis in Yemen** see <https://reliefweb.int/report/yemen/yemen-humanitarian-update-issue-3-march-2021>

For more on the **UK's involvement in the war in Yemen** see <https://caat.org.uk/homepage/stop-arming-saudi-arabia/uk-arms-to-saudi-arabia/>

It is difficult to gauge the extent of the COVID-19 pandemic in Yemen. The vast majority of people who contract the disease stay at home. But health-care workers talk of overwhelmed hospitals, and gravediggers talk of overflowing cemeteries. On March 25, 2021, Médecins Sans Frontières (MSF) warned of a “dramatic influx of critically ill COVID-19 patients requiring hospitalisation” in Aden, the temporary capital city on the southern coast of Yemen. The country is already in the midst of the longest-running and largest cholera epidemic in recorded history. Diphtheria returned to Yemen in 2017, after an absence of 25 years, and there have been reports of sizable outbreaks of mosquito-borne diseases. “Yemen is becoming a haven for infectious diseases”, said Hesham Al-Mekhlafi (Jazan University, Jazan, Saudi Arabia).

Perhaps COVID-19 would have ravaged Yemen with or without the war. Nonetheless, years of conflict are no way to prepare for a pandemic. In October, 2014, the Iran-backed Houthi movement overran Yemen's capital Sana'a. President Abd Rabbu Mansour Hadi fled to Aden, and from there to Saudi Arabia. In March, 2015, a coalition of nine countries, led by Saudi Arabia, began air strikes in support of Hadi. Yemen is now split into the smaller but more populous northern part of the country, controlled by the Houthis but blockaded by the coalition by air and sea, and the rest of the nation, which is broadly overseen by the exiled government, but with rival groups, including Al Qaeda and Islamic State, vying for power.

More than 4 million Yemenis have been internally displaced.

They are especially vulnerable to vector-borne diseases, since they often do not have adequate shelter, and to diarrhoeal diseases, since their water and sanitation services tend to be rudimentary. “The Expanded Programme on Immunization is not working at all”, adds Raphael Veicht, head of mission of MSF in Yemen. Access to health care is severely constrained. In 2016, WHO estimated that just 45% of Yemen's health-care facilities were fully functional and accessible. Since then, things have worsened. “If I am being optimistic, I would say that you have functionality in no more than 25% of facilities”, said Al-Mekhlafi. “These places are doing their best but they cannot offer full services; a lot of health-care workers have left”.

There remain some private clinics, but these do not typically accept people with symptoms of COVID-19. MSF runs the only COVID-19 treatment centre in Aden, a city of 1.1–1.5 million people. “We have 11 intensive care unit beds and 20 inpatient beds for people who need a high level of oxygen”, said Veicht. “It is an extremely tough situation. Nowhere else is offering treatment and all the other pillars of the response are not happening. There is no health promotion, vaccination, or water, sanitation, and hygiene”.

In a rare piece of good news for Yemen, 360 000 doses of the Oxford-AstraZeneca COVID-19 vaccine arrived in Aden on March 31. The shipment was the first batch of the 2 million doses Yemen is scheduled to receive this year from the COVID-19 Vaccine Global Access (COVAX) facility, a joint initiative between WHO, Gavi, the Vaccine Alliance, and the

Coalition for Epidemic Preparedness Innovations, which aims to ensure that the COVID-19 vaccines are equitably distributed around the world. But even if Yemen's order is fulfilled, it will only cover 1 million people, in a country of almost 30 million.

“The chaos in Yemen makes concerted public health interventions impossible”, Veicht told *The Lancet Infectious Diseases*. “There is no social distancing, people are not wearing masks in public, and it speeds up transmission”. The Houthi authorities were slow to respond to the pandemic. They did not report the first case in their territory until May 5, 2020. SARS-CoV-2 is likely to have entered the Arabian peninsula several weeks earlier. Yemen has struggled to establish a testing capacity. Oxygen, intensive care unit beds, and ventilators are in short supply.

The most recent UN Office for the Coordination of Humanitarian Affairs situation report on Yemen outlined the astonishing array of problems now facing the war-torn nation. 20.7 million people require humanitarian assistance, with 12.1 million people in acute need, 5 million people are on the verge of famine (almost 50 000 people are already starving), and more than 2 million children younger than 5 years are expected to experience acute malnutrition this year. Around three-quarters of Yemeni children are chronically malnourished. As if the situation were not bad enough, last year a plague of locusts cost Yemen's agriculture sector US\$222 million.

Cholera emerged in Yemen in 2016. But it really took hold the following year. Thus far, there have

been an estimated 2.5 million cases. 2020 saw 229 887 suspected cases, down from 860 000 in 2019. Fekri Dureab (Heidelberg University, Heidelberg, Germany) stresses that there is no reason to believe that cases will continue to fall in 2021. "Nothing has changed; all the things that made the disease break out in the first place are still there", he said. "Northern and rural places are at particular risk".

Two-thirds of the Yemeni population lack access to clean water and sanitation. Garbage is piling up on the streets, and underground water supplies all over the country have been contaminated with sewage. "There is a lot of population movement, water shortages, and problems with waste management", said Dureab. "It is very conducive to cholera." Al-Mekhlafi agrees. "All the underlying risk factors are in place for an epidemic of cholera, and some have got worse

in the past few years. There is no preparedness", he said. "And the factors that favour the transmission of cholera also favour the transmission of vector-borne diseases".

80% of Yemenis are below the poverty line. Spiralling inflation compounds the problem. "People cannot afford even soap, so it is not possible to do handwashing", points out Al-Mekhlafi. The COVID-19 pandemic has led to a fall in desperately needed remittances from Yemenis living outside the country. The UNW has asked for \$3.85 billion to fund its activities in Yemen this year, less than half of which has been received. The UK has cut its bilateral aid to Yemen by almost half for 2021–22, compared with the previous year; since the beginning of the war, it has provided billions of pounds worth of weaponry to the Saudi armed forces.

"This war is getting worse every year, and the international community have repeatedly failed to mediate between the different parties", said Veicht. "The main priority has to be to address the root causes of this conflict, because it is the conflict that is causing the suffering of the people of Yemen". The situation could easily deteriorate further. Fighting is escalating in the northeast governorate of Marib. 2.7 million Yemenis are thought to reside in Marib, most of whom took refuge there earlier in the war. They could be forced to once again flee. In the meantime, it is hard to see how Yemen will be able to cope with the surge in cases of COVID-19. "The disease is everywhere in Aden", said Dureab, who was speaking from the city. "Every day, we are hearing about more and more deaths".

Talha Burki

## Infectious disease surveillance update

### Sleeping sickness in Ivory Coast

On March 25, Côte d'Ivoire was validated by WHO as having eliminated sleeping sickness (human African trypanosomiasis) as a public health problem, the second country in Africa to do so, after Togo. In the 1990s, Côte d'Ivoire reported several hundred cases a year, which declined to fewer than ten cases per year in the past few years due to active surveillance, alongside passive screening, of at-risk populations and use of efficient control measures. Finding and treating cases resulted in the tsetse fly vector not being able to transmit the parasite that causes the disease (parasites from the genus *Trypanosoma*).

### Ebola virus disease in Guinea

After 27 days without a report of new Ebola cases, on April 2, Guinea reported a new case of Ebola virus disease (EVD). In total, 19 cases

have been reported since the start of the outbreak on Feb 14, 2021, including nine deaths. The latest case was reported from Souлата village in N'zérékoré Prefecture, the same prefecture where the previous cases were reported. The countdown to declare the end of the outbreak had begun on March 26 after the last patient was discharged from an Ebola treatment centre. The end of an EVD outbreak is declared when 42 days pass without a new confirmed case.

### Botulism in Canada

On March 27, the Nunavik regional health board in northern Quebec, Canada, reported at least 27 cases of botulism poisoning linked to consumption of walrus meat. The cases were reported in Inukjuak where the meat was consumed during community festivities held March 18–19. The health board

advised residents in the community to verify their meat source and destroy meat through burning. The bacterium producing the botulism toxin is found naturally in walrus.

### Measles in DR Congo

13 000 cases of measles have been reported so far this year in DR Congo. The last outbreak was declared over in August, 2020, but cases began increasing at the end of the year. The cases in this new upsurge have been reported from North Ubangi and South Ubangi provinces. Humanitarian agencies are supporting the ministry of health with case management and vaccination programmes to slow transmission. Measles mainly affects children younger than 5 years; to prevent the illness, a vaccine coverage of 95% is required with the two-dose vaccine.

Ruth Zwizwai



For more on **sleeping sickness in Côte d'Ivoire** see <https://www.who.int/news/item/25-03-2021-who-validates-cote-d-ivoire-for-eliminating-sleeping-sickness-as-a-public-health-problem>

For more on **Ebola virus disease in Guinea** see <https://www.africanews.com/2021/04/02/new-ebola-case-reported-in-guinea-in-nearly-a-month/>

For more on **botulism in Canada** see <https://nunatsiaq.com/stories/article/nunavik-health-board-warns-of-possible-botulism-exposure-in-inukjuak/>

For more on **measles in DR Congo** see <https://promedmail.org/promed-post/?id=8285265>