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Is the Worst Part Behind Us? Epidemiology, Data and Lebanon's COVID-19 Response

→ Sirine Anouti



A man wears a face mask as he walks in front of the entrance of the Rafik Hariri University Hospital in Beirut, on the COVID-19 testing sites in Lebanon, March 2020.

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On 15 March, the Lebanese government declared the COVID-19 epidemic a “public health emergency” and decreed a lockdown in the country. More than a month after these restrictions, data suggests that the spread is slowing down and that Lebanon is slowly containing the disease. These conclusions should be made with caution, however, given the fluctuations in the number of daily tests and the profiles of people seeking testing. The success of the lockdown strategy has come at a great cost as it has inflicted a major burden on middle-to-low income groups given the absence of any social safety measure.

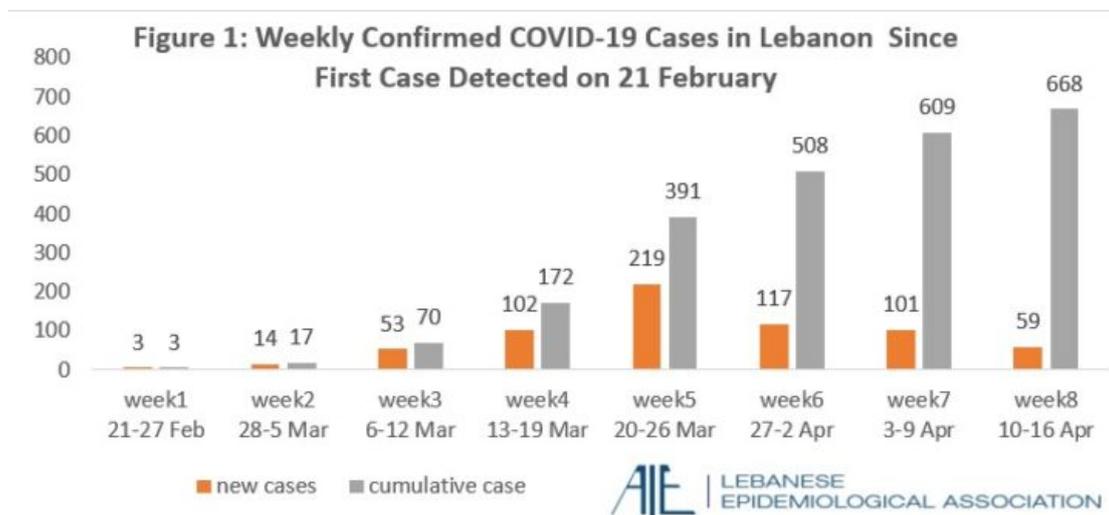
What is epidemiology and why does it matter?

By definition, epidemiology is “the study of the distribution and determinants of health-related states or events (including disease), and the application of this study to the control of diseases and other health problems”. Trained for such moments, the epidemiologists’ role in a crisis is to help the public better understand the intricate details of infectious diseases, how they transmit and how they can be contained. In this era of misinformation and disinformation, poor predictions and unfounded recommendations can be very costly – think of Italy’s and most recently United States’ disastrous delays in reacting to the COVID-19 pandemic. In Lebanon, many junior and senior epidemiologists and public health experts including members from the [Lebanese Epidemiological Association](#) are working tirelessly to understand the dynamics of this novel coronavirus and raise awareness about the pitfalls in data interpretation.

How is the COVID-19 pandemic faring in Lebanon?

As of 19 April, Lebanon had reported 677 COVID-19 confirmed cases, of which there have been 21 deaths and 99 recoveries. About two-thirds of reported cases are aged below 50. The proportion of severe/critical cases that require hospitalization remains low (8-9%) compared to a reported global average of around 22% severe/critical cases.¹ This caseload has not so far saturated the healthcare system

capacity for coronavirus patients which according to the ministry of public health (MOPH) consists of 576 general hospital beds, 234 ICU beds and 263 ventilators.² Up until the 6th week of the epidemic, the number of confirmed new cases was doubling every 5-7 days but this increase was in part due to an increase in the number of screening tests. More private testing sites became operational and started reporting results to MOPH, making the test available even to asymptomatic at-risk persons. At this stage, the data seems to suggest that Lebanon is experiencing a significant decrease in the growth rate of infections, with less new cases diagnosed every week, as shown in **Figure 1**.



Does this mean that Lebanon has contained the spread of Coronavirus?

To answer this question, epidemiologists look for the inflection point where the epidemic curve (which depicts the distribution of new cases per day) stops increasing and starts decreasing, remaining down for at least a couple of incubation periods with each period being of 14 days.³ If the growth factor of the coronavirus epidemic stays consistently above “1”, it means that the epidemic is spreading exponentially; when it falls consistently below 1, it is a sign that the inflection point has been obtained. For the case of Lebanon, as shown in **Figure 2**, data suggests that 6 weeks after the first case was detected, the weekly growth factor has begun to stabilize at 1 or below, indicating that the disease is not

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spreading exponentially. If the weekly growth factor remains at the current level for the coming two weeks – which is the incubation period of the virus – it will be safe to say that Lebanon is slowly containing the spread and should start implementing a gradual lifting of lockdown measures.

Figure 2 : Weekly Growth Factor for COVID-19 Confirmed Cases in Lebanon Since First Case detected on 21 February



How reliable is the data released by Lebanon?

The MOPH provides information on demographics, symptoms, and outcomes for the reported COVID-19 cases in Lebanon. While the ministry has communicated data daily, independent epidemiologists and researchers have urged more transparency in data sharing from the MOPH's Epidemiological Surveillance. Information such as the regional distribution of testing, contact tracing, transmission rate and characteristics of people seeking testing (age, gender, symptomatic/asymptomatic, socio-economic status, place of residence, etc.) remain publicly inaccessible despite being essential to make more accurate conclusions regarding the current situation.

While the current numbers help understand the spread of the pandemic, a fuller



assessment will require more testing. Although the rate of testing in Lebanon is gradually increasing and could reach up to 2000 per day,⁴ there are unfortunately factors limiting the capacity to further increase as the tests – known as PCR tests – are costly. Only those with high-risk factors are selected for free testing at the public Rafic Hariri University Hospital, while all others have to obtain it for a hefty fee of 150,000 LBP from private hospitals. Also, most people – around 80% – have an asymptomatic or mild infection which may never prompt them to seek any kind of medical help, thus the total number of COVID-19 cases is most likely underestimated. Not to mention that increasing testing implies “importing” more resources to run them such as PPE (Personal Protection Equipment) for testing staff, reagents and kits, which is a problem in resource-scarce countries like Lebanon.

Random testing has been recently introduced and is currently underway in different districts in Lebanon to know the extent of the coronavirus’s penetration in the country.⁵ While increasing testing is good news, it needs to remain constant throughout for meaningful interpretations of the detection rate of infections. The number of daily tests ranges between around 250 and 1100 in April.

How long can people stay in quarantine?

Officials’ decision to extend the lockdown should be based on clear rationale and information that takes into account the extent of testing, the changing rate of virus transmission R_0 (i.e. the number of newly infected people from a single case) and its impact on people – their wellbeing and also economic resilience.⁶ Research shows that a longer quarantine can lead to long-lasting effects on people’s mental health.⁷ It has also been shown that putting the burden on lower economic groups – which often need to leave their homes to earn a living – deepens the existing economic inequality and, in a vicious circle, exacerbates the spread of pandemics.⁸ Not long before the COVID-19 outbreak, many Lebanese were already in precarious work situations, with no safety nets and/or no paid leaves or other social benefits. In these tough times, financial loss can be catastrophic for people with low-income, self-employed people who are unable to work or salaried staff who are unable to take paid leave. To ensure continued public commitment to coercive measures such as quarantine, the government must urgently provide sufficient

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and on-time relief package to low- or no-income citizens of Lebanon.

Until now, the epidemiological understanding of the pandemic is evolving every day. Epidemiologists from various disciplines and infectious disease experts are working together to address the problem. Lebanon has not yet announced how it aims to approach the difficult decision of lifting the lockdown. The best strategies and policies, however, will need to be based on good communication and collaboration between researchers and local and governmental authorities.

Visuals are produced by the COVID-19 taskforce of The Lebanese Epidemiological Association, the professional umbrella for academic and field workers for Epidemiology and Public Health in Lebanon. Data are based on MOPH dashboard.



Endnotes

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Sirine Anouti is public health researcher and a member of the Lebanese Epidemiological Association. Her main research interests lie in health data science and health education. She has written previous Op-Eds on COVID-19 in regional journals. She has a Master's in Public Health -Epidemiology and Biostatistics from the American University of Beirut.

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