

On the possibility of interrupting the coronavirus (COVID-19) epidemic based on the best available scientific evidence

Sobre a possibilidade de interrupção da epidemia pelo coronavírus (COVID-19) com base nas melhores evidências científicas disponíveis

Antônio Augusto Moura da Silva¹ 

Today, 03/06/2020, we have an accumulated total of 100,625 cases and 3,411 deaths from the COVID-19 coronavirus in the world¹. The case-fatality rate for this virus, estimated by the World Health Organization (WHO), is 3.4%², being highest in China and lowest in the rest of the world. The percentage of asymptomatic patients seems to be very low (about 1%)^{2,3} and most asymptomatic patients develop symptoms in about 2 days², according to data from the WHO-China joint mission on Coronavirus Disease⁴. Thus, asymptomatic patients do not appear to be important in the transmission of the disease⁴. The case-fatality rate by COVID-19 was estimated to be around 0.5 to 4%. This case-fatality rate is similar to that of Spanish influenza (2 to 3%)⁵ and much higher than that of influenza A H1N1 (0.02%)⁶ or seasonal influenza (0.1%)⁷. However, 80.9% of the cases of the disease are mild³.

Evidence is piling up and there is still a chance to stop this epidemic. *We cannot think that this virus will install itself among us and be just another agent responsible for the flu, because it has very high rates of transmission and its case-fatality is not low.* China has managed to greatly reduce transmission mostly with three effective measures⁴:

- Protect health professionals with personal protective equipment;
- Identify symptomatic patients, perform tests, give results quickly and isolate them;
- Identify close contacts and quarantine them.

¹Departamento de Saúde Pública, Centro de Ciências Biológicas e da Saúde, Universidade Federal do Maranhão – São Luís (MA), Brazil.
Corresponding author: Antônio Augusto Moura da Silva. Departamento de Saúde Pública, Centro de Ciências Biológicas e da Saúde, Universidade Federal do Maranhão. Rua Barão de Itapary, 155, Centro, CEP: 65020-070, São Luís, MA, Brazil. E-mail: aamouradasilva@gmail.com

The epidemic is spreading around the world partially due to the delay in testing the suspects, in giving the results and in isolating them, and also due to the failure to protect health professionals, which is also generating dissemination of the virus from health services. In addition, many close contacts do not seek health services, as they develop mild illness, which makes it difficult to identify cases and control the epidemic. China is managing to block the epidemic probably because it is identifying and isolating at least 80% of the close contacts^{4,8}.

In summary: there is a chance to stop this epidemic, as asymptomatic cases do not appear to significantly feed transmission⁴. These are absolute priorities: protecting health professionals, testing and quarantining at least 80% of the close contacts. It is necessary to act quickly because, associating the case-fatality rate with the speed of virus transmission, the number of cases has been doubling in size every 5 days. South Korea is also taking these steps and has already managed to quickly stabilize the epidemic in the past days. We need to act fast!

This means *expending substantial resources and significant efforts focusing on these three priorities*. China, for example, deployed 1,800 epidemiologists to track contacts in Hubei province and sent 40,000 health professionals from other locations to deal with cases in Wuhan⁴.

Therefore, we need to designate prepared health units with protected health professionals to take care of the cases, provide staff to perform nasal and oropharyngeal swab and implant a laboratory structure that can give the results quickly so that the isolation of the positives is provided without delay. This isolation can be at home or in prepared health units if the case requires hospitalization, which according to data from China will be needed in around 20% of cases⁷, with 5% requiring ICU and 2.3% mechanical ventilation⁹.

WHO words: *we need to fully educate the general public about the seriousness of COVID-19 and its role in preventing its spread*¹⁰. Unfortunately, this disease is not, as we would like it to be, a banal disease. Just as there is no reason to panic, we need to act urgently, otherwise we will have a profound economic recession and life loss. The idea that we had, a week ago, that the case-fatality rate by COVID-19 could be lower because of undetected symptomatic patients, and may even be similar to the common flu⁷, may not be true based on current evidence⁴.

The epidemic continues at a rapid pace. Today, we have 9 cases reported in Brazil, among them two cases of local transmission, but we still do not have sustained transmission at community level¹¹. However, science has also progressed rapidly. We may be able to stop this disease if we allocate massive resources directed to the three priorities mentioned above based on the best evidence available at the moment, which are recommended by the World Health Organization⁴. The outcome of the epidemic is uncertain and how serious it will be among us will depend on our response. Brazil has the capacity to overcome this challenge, as SUS is one of the largest public health systems in the world, but intense social mobilization is needed.

REFERENCES

1. Johns Hopkins University. Coronavirus COVID-19 Global Cases by Johns Hopkins CSSE [Internet]. Johns Hopkins University; 2020 [cited on Mar. 6, 2020]. Available at: <https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>
2. World Health Organization. WHO Director-General's opening remarks at the media briefing on COVID-19 – 3 March 2020 [Internet]. World Health Organization; 2020 [cited on Mar. 6, 2020]. Available at: <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19--3-march-2020>
3. Novel Coronavirus Pneumonia Emergency Response Epidemiology Team. The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19) in China. *China CDC Wkly* [Internet]. 2020 [cited on Mar. 6, 2020]; 41(2): 145-51. Available at: <https://doi.org/10.3760/cma.j.issn.0254-6450.2020.02.003>
4. World Health Organization. Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19) [Internet]. World Health Organization; 2020 [cited on Mar. 6, 2020]. Available at: <https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf>
5. World Health Organization. Pandemic Influenza preparedness and response: a WHO guidance document [Internet]. Geneva: World Health Organization; 2009 [cited on Mar. 6, 2020. Available at: https://apps.who.int/iris/bitstream/handle/10665/44123/9789241547680_eng.pdf
6. Khandaker G, Dierig A, Rashid H, King C, Heron L, Booy R. Systematic review of clinical and epidemiological features of the pandemic influenza A (H1N1) 2009. *Influenza Other Respir Viruses* 2011; 5(3): 148-56. <https://doi.org/10.1111/j.1750-2659.2011.00199.x>
7. Fauci AS, Lane HC, Redfield RR. Covid-19—Navigating the Uncharted. *N Engl J Med*. 2020. <https://doi.org/10.1056/NEJMe2002387>
8. Hellewell J, Abbott S, Gimma A, Bosse NI, Jarvis CI, Russell TW, et al. Feasibility of controlling COVID-19 outbreaks by isolation of cases and contacts. *Lancet Glob Health* 2020; published online Feb 28. [https://doi.org/10.1016/S2214-109X\(20\)30074-7](https://doi.org/10.1016/S2214-109X(20)30074-7)
9. Guan W-J, Ni Z-Y, Hu Y, Liang W, Ou C-Q, He J-X, et al. Clinical Characteristics of Coronavirus Disease 2019 in China. *N Engl J Med*. <https://doi.org/10.1056/NEJMoa2002032>
10. World Health Organization. WHO Director-General's opening remarks at the media briefing on COVID-19 - 5 March 2020 [Internet]. World Health Organization; 2020 [cited on Mar. 6, 2020]. Available at: <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19--5-march-2020>
11. BBC News Brasil. Ministério da Saúde confirma 9 casos do novo coronavírus no Brasil; já há transmissão local. *BBC News Brasil* [Internet]. 2020 [cited on Mar. 6, 2020]. Available at: <https://www.bbc.com/portuguese/brasil-51713943>

