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- 1 UK Government. Press release update from SAGE: delay phase modelling. March 14, 2020. https://www.gov.uk/government/news/ update-from-sage-delay-phase-modelling (accessed March 15, 2020).
- 2 Remuzzi A, Remuzzi G. COVID-19 and Italy: what next? Lancet 2020; published online March 13. https://doi.org/10.1016/ S0140-6736(20)30627-9.
- 3 Anderson RM, Heesterbeek H, Klinkenberg D, Hollingsworth TD. How will country-based mitigation efforts influence the course of the COVID-19 epidemic? Lancet 2020; published online March 9. https://doi.org/10.1016/ S0140-6736(20)30567-5.
- 4 WHO. Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). Feb 16, 2020. https://www.who.int/docs/ default-source/coronaviruse/who-china-jointmission-on-covid-19-final-report.pdf (accessed March 16, 2020).

COVID-19 cacophony: is there any orchestra conductor?

The first wave of coronavirus disease 2019 (COVID-19) pandemic is currently invading the world, and several countries are now struggling to fight it or trying to delay its start to help smooth its peak size for the purpose of lowering morbidity and mortality, and thereby reduce the overall tension on their healthcare system. China's first major outbreaks of COVID-19 happened in January, 2020. Then South Korea, Iran, and Italy entered into this Ravel's Bolero-like epidemic in late February and early March, 2020, and many other countries are preparing to play the same rhythmic pattern in the coming days and weeks.

All countries have to react and take action without any conducting from WHO. WHO's Director-General declared on Jan, 30, 2020, a Public Health Emergency of International Concern, which allowed him to release subsequent recommendations, but none were issued with regard to what to do, and when to do it, at the country level. With no vaccine or antivirals, the portfolio of countermeasures against COVID-19 is limited. Only a small set of evidence-based non-pharmaceutical interventions are available. 2-6

Measures like self-quarantine, or temperature control at borders, are not expected to be very effective since half of infections are asymptomatic. There is consensus today to propose school closure, restrict social gathering (including shutdown of workplaces), limit population movements, and introduce so-called cordons sanitaires, which means quarantines at the scale of cities or regions. There is less consensus about which measure should start first, in which combination, and when.

There is no direct scientific evidence regarding wearing protective masks in public spaces for asymptomatic people, but mask protection is heavily practised in Asian populations and seems deeply despised in Western cultures. There is no common policy about which measures should be considered, and at which epidemiological threshold such measures should be implemented. Nobody knows at which level restrictions on mass gathering should be imposed.

The recent Chinese experience of combining non-pharmaceutical interventions to curb outbreak trends seems rather convincing. Although starting late in the process, authoritarian Chinese authorities succeeded in combining forced isolation of the population with all available social distancing interventions. The democratic Italian Government, followed by the governments of France, Spain, and other countries, set up most of these measures quickly in the epidemic process but lacked any international guidance or recommendations. Would they not have expected to see WHO headquarters as the orchestra conductor at this stage of the process? Do Member States not need some level of harmonisation and coordination when implementing the four available nonpharmaceutical interventions to help them decide whether, when, and how to implement them; if, when, and how to combine them; and to what extent? In addition, the Chinese Government has no guidance nor recommendation about lifting measures that have been in place in Wuhan since Jan 23, 2020. To what extent, at which pace, and how should they start lifting their intervention and allow people to resume normal social and economic life?

WHO remains surprisingly silent and absent in all of these pragmatic questions.

I declare no competing interests.

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- WHO. Statement on the second meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-nCoV). Jan 30, 2020. https://www.who.int/newsroom/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov) (accessed March 17, 2020).
- WHO Writing Group, Bell D, Nicoll A, et al. Nonpharmaceutical interventions for pandemic influenza, international measures. Emerg Infect Dis 2006; 12: 81–87.
- 3 WHO Writing Group, Bell D, Nicoll A, et al. Nonpharmaceutical interventions for pandemic influenza, national and community measures. Emerg Infect Dis 2006; 12: 88–94.
- 4 Haber MJ, Shay DK, Davis XM, et al. Effectiveness of interventions to reduce contact rates during simulated influenza pandemic. Emerg Infect Dis 2007; 13: 581–89.
- Markel H, Lipman HB, Navarro JA, et al. Nonpharmaceutical interventions implemented by US cities during the 1918–1919 influenza pandemic. JAMA 2007; 298: 644–54.
- 6 European Centre for Disease Prevention and Control. Considerations relating to social distancing measures in response to the COVID-19 epidemic. March 11, 2020. https://www.ecdc.europa.eu/sites/default/ files/documents/social-distancing-measuresin-response-to-the-COVID-19-epidemic.pdf (accessed March 17, 2020).



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Future of Chernobyl research: the urgency for consolidated action

The Chernobyl nuclear disaster on April 26, 1986, continues to create fears and myths about its health consequences, as shown by the large response to a top-rated HBO miniseries devoted to the tragic event. Risk assessments range from recognising an increase in thyroid



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