Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Letter to the Editor

Putting some context to the aerosolization debate around SARS-CoV-2

Sir,

A letter entitled 'Aerosol and surface stability of SARS-CoV-2 as compared with SARS-CoV-1' was published recently in the *New England Journal of Medicine* [1]. The experiments reported in this letter compared the stability of SARS-CoV-2 and SARS-CoV-1 in aerosols and on a number of different surfaces. The usefulness of such a comparison is without argument, and knowing the relative tenacity of SARS-CoV-2 compared with SARS-CoV-1 in the healthcare environment will no doubt help put the SARS-CoV-2 virus into perspective, and help guide protocols for environmental hygiene. The work showed that 'SARS-CoV-2 remained viable in aerosols throughout the duration of (the) experiment (3 h), with a reduction in infectious titer from $10^{3.5}$ to $10^{2.7}$ $TCID_{50}$ per liter of air. This reduction was similar to that observed with SARS-CoV-1'.

Nonetheless, this perfectly solid article has inadvertently become the source of a great deal of misinformation in the mainstream media. A large number of sources, including Reuters, *The New York Times* and the British Broadcasting Corporation, have argued that SARS-CoV-2 is an airborne disease [2–4]. The assertions by these media articles include that SARS-CoV-2 can last '3 h after being coughed out into the air' [4] and that the study by van Doremalen *et al.* 'attempted to mimic the virus deposited from an infected person onto everyday surfaces in a household or hospital setting, such as through coughing or touching objects' [2]. The media even went as far as suggesting that the aerosols generated by the three-jet Collison nebulizer 'duplicated the microscopic droplets created in a cough or a sneeze' [1,2].

This is not what was said by van Doremalen *et al.* [1], and herein lies the main issue: there is a lack of understanding by the media concerning the difference between test conditions and clinical conditions. The general assumption that is made is that the particles created when a virus is artificially nebulized are the same as when someone coughs or sneezes. In reality, the collision nebulizer used in the study is known to create very small droplets that can hold viruses far longer than other types of nebulizers that mimic conditions closer to those generated by humans [5].

The media also assumed that conditions for the survival of viruses in droplets in ambient air are similar to those in a Goldberg drum like the one used by van Doremalen *et al.* [1]. This is an inaccurate assumption — droplets that are coughed behave differently in the open air. Some are large and fall to the ground, some linger for a while close to where they were disseminated, and some tiny droplets evaporate very quickly [6].

If we look at the example of SARS-CoV-1, there was evidence of nosocomial spread even with the use of N95 masks. Air and surface samples were taken, and the virus was only found on surfaces [7].

van Doremalen *et al.* measured how long SARS-CoV-2 stays viable in aerosol in very specific experimental conditions. This should not be interpreted as giving information on when and how aerosols are generated in clinical conditions, nor whether or not the virus remains viable or, more importantly, transmissible in those conditions.

It is for these reasons that the World Health Organization and infection prevention specialists continue to support the assertion that transmission of SARS-CoV-2 is primarily through droplets and contact (including indirect contact with contaminated surfaces) [8,9]. Aerosols are likely to be generated through a small number of clinical procedures, but this is not the main way in which the virus spreads in the community.

Conflict of interest statement

None declared.

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