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The upcoming influenza season and protection from vaccines

On Sept 28, 2022, the UK Health Security Agency (UKHSA) issued a press release calling on all those eligible for influenza and COVID-19 booster vaccinations to ensure that they take up the offer. “Flu and COVID-19 are unpredictable but there are strong indications we could be facing the threat of widely circulating flu, lower levels of natural immunity due to less exposure over the last three winters and an increase in COVID-19 circulating with lots of variants that can evade the immune response”, stated Susan Hopkins, Chief Medical Advisor at UKHSA. “This combination poses a serious risk to our health.”

The week of Sept 19–25 saw an increase in the number of patients admitted to hospital with COVID-19 in the UK, compared with the previous week. 88% of the population over the age of 12 years have received both doses of the COVID-19 vaccine. The autumn booster dose campaign began in early September. On Sept 30, the European Centre for Disease Prevention and Control reported increasing cases of COVID-19 in 15 European Union and European Economic Area nations. Across the region, around two-thirds of the adult population had received at least one booster dose against COVID-19.

In contrast, the USA reported decreasing prevalence of SARS-CoV-2, although there are signs of increased detections in wastewater. The 2 weeks up to Sept 28 saw sharp declines in the rolling 7-day average of daily new cases of COVID-19. Hospitalisations and deaths from COVID-19 are also declining. More than two-thirds of the US population have had both doses of the COVID-19 vaccine, but only half of the eligible population have received the booster jab.

The mild influenza seasons of 2020/21 and 2021/22 in the northern hemisphere are likely to be at least partially related to the social distancing, mask-wearing, and lockdowns that were enacted to combat COVID-19. Benjamin Singer, professor of pulmonary medicine at Northwestern University (Chicago, IL, USA), argues that there might also have been an element of viral exclusion. “It is very hard to prove, but the theory is that if you have one respiratory virus in widespread circulation, as SARS-CoV-2 has been, especially after the emergence of the omicron variant, then it reduces the chances of people contracting another respiratory virus, because they already have their antiviral immunity ramped up”, he explained.

Singer worries that the relative scarcity of influenza over the past couple of years means that protective antibody levels against the virus are now far lower in the general population that at any time in recent history. Coupled with the cessation of the COVID-19 control measures, this could raise the chances of a sizeable influenza outbreak. Set against this possibility is the viral exclusion thesis. “Flu is extremely difficult to predict”, pointed out Singer. “Mild seasons tend to be followed by more severe ones, but that does not necessarily mean that this year will be bad. We do not know how levels of SARS-CoV-2 will affect influenza.”

Martin Hibberd is professor of emerging infectious diseases at London School of Hygiene & Tropical Medicine (London, UK). He agrees that an influenza outbreak is probably due. “Everything has more or less opened up and socialising has returned to normal”, said Hibberd. Australia saw a large number of cases of influenza during the southern hemisphere season. Their outbreak was mainly driven by H3N2.

Hibberd underscored the importance of vaccination. “I think there is a pretty broad desire to move on from COVID-19. I hope this does not affect take-up of the booster, which is the only way to maintain our resistance”, he said. There is no evidence that simultaneous administration of the influenza vaccine and the COVID-19 vaccine damps the immune response. However, there have been questions over whether individuals who receive early influenza vaccination, say in September, might experience waning immunity by January or February, when cases are expected to peak. Hibberd does not share these concerns. “The reason we change the flu vaccine each year is because of the circulating strains. The vaccine itself should give you enough protection to see you through the entire season”, he said.

Daniel Salmon, director of Johns Hopkins Institute for Vaccine Safety (Baltimore, MD, USA), noted that there are sound pragmatic reasons for providing both COVID-19 and influenza vaccines at the same time. “It is much easier to have people attend once than twice, though it does make it a bit tricky to figure out which vaccine is to blame in the event of any adverse events”, he said. Salmon welcomed the news that Moderna and Pfizer are embarking on separate clinical trials of mRNA vaccines targeting influenza and involving several thousand participants. “Of course, we will have to wait on the results, but one key advantage of the mRNA vaccines is how quickly they can be made. That would be particularly useful in the case of influenza”, he told The Lancet Respiratory Medicine.

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