



The following information resources have been selected by the National Health Library and Knowledge Service Evidence Virtual Team in response to your question. The resources are listed in our estimated order of relevance to practicing healthcare professionals confronted with this scenario in an Irish context. In respect of the evolving global situation and rapidly changing evidence base, it is advised to use hyperlinked sources in this document to ensure that the information you are disseminating to the public or applying in clinical practice is the most current, valid and accurate. For further information on the methodology used in the compilation of this document—including a complete list of sources consulted—please see our [National Health Library and Knowledge Service Summary of Evidence Protocol](#).

YOUR QUESTION

Does the flu vaccine increase the risk of contracting COVID-19?

IN A NUTSHELL

No study established a link between the flu vaccine and an increased risk of contracting COVID-19. Wolff, investigating viral interference among Department of Defence personnel concluded that the flu vaccine was not associated with viral interference and provides protection against influenza. The study did show varied results for how each non-flu respiratory virus, such as a coronavirus, impacted vaccinated subjects.⁶ This paper drew attention on social media with claims that the flu vaccine would increase the chances of getting COVID-19 by 36%. These claims are contradicted by Fichera.¹³

The WHO recommendations in relation to the COVID-19 pandemic and immunisation is overarching and less disease specific. WHO states that mass vaccination campaigns to prevent or respond to outbreaks of vaccine-preventable diseases and high impact diseases (VPD/HID) are effective strategies to reduce deaths and disease. Yet many countries have had to postpone such vaccination campaigns due to the physical distancing measures implemented to reduce COVID-19 transmission.³

WHO developed interim guidance, in the form of a framework and guiding principles to support countries in their decision-making regarding provision of immunization services during the COVID-19 pandemic. Each country will need to conduct risk assessments based on the local dynamics of COVID-19 transmission, immunization and health system characteristics and current VPD epidemiology in their setting. However the guiding principles recommend that where feasible, influenza vaccination of health workers, older adults and pregnant women is advised.²

In Ireland, the Minister for Health, Simon Harris, announced that the flu vaccination programme will be extended and made available free of charge to all children aged 2-12 years and to those in at risk groups. This is to minimise the risk of a second wave of COVID-19 during the winter flu season.¹²

IRISH AND INTERNATIONAL GUIDANCE

What does the Health Protection Surveillance Centre (Ireland) say?

[HPSC \(2020\) Seasonal Influenza¹](#)

HPSC state that the flu vaccine offers the best protection for those at high risk for seasonal influenza. If you are in a risk group, it is recommended that you receive the vaccine.

What does the World Health Organization say?

[WHO \(2020\) Guiding principles for immunization activities during the COVID-19 pandemic. Interim guidance²](#)

This document provides guiding principles and considerations to support countries in their decision-making regarding provision of immunization services during the COVID-19 pandemic and is endorsed by the WHO's Strategic Advisory Group of Experts on Immunization. There are seven guiding principles outlined in this document. The seventh guiding principle specifically mentions the influenza vaccine, stating that where feasible, influenza vaccination of health workers, older adults and pregnant women is advised.

[WHO \(2020\) Framework for decision-making: implementation of mass vaccination campaigns in the context of COVID-19. Interim guidance³](#)

In the context of the COVID-19 pandemic this document describes the principles to consider when deliberating the implementation of mass vaccination campaigns for prevention of vaccine-preventable diseases and high impact diseases (VPD/HID) and when assessing risks and benefits of



conducting outbreak-response vaccination campaigns to respond to VPD/HID outbreaks.

What does the European Centre for Disease Prevention and Control say?
[**ECDC \(2020\) European Vaccination Information Portal⁴**](#)

The ECDC launched the European Vaccination Information Portal in April 2020. The purpose of this website is to provide accurate, objective, up-to-date evidence on vaccines and vaccination in general. It also provides an overview of the mechanisms in place in the EU to ensure that available vaccines conform to the highest standards of safety and effectiveness. The website contains information on influenza, including vaccination and disease fact sheets, vaccination schedules and surveillance data.

What does the Centers for Disease Control and Prevention (CDC) say?
[**CDC \(2020\) Misconceptions about seasonal flu and flu vaccines. Is it true that getting a flu vaccine can make you more susceptible to other respiratory viruses?⁵**](#)

The preponderance of evidence suggests that this is not a common or regular occurrence and that influenza vaccination does not, in fact, make people more susceptible to other respiratory infections.

INTERNATIONAL LITERATURE

What does the international literature say?
[**WOLFF \(2020\) Influenza Vaccination and Respiratory Virus Interference Among Department of Defense Personnel During the 2017-2018 Influenza Season⁶**](#)

This study examines if the flu vaccine given to Department of Defense Personnel during the influenza season of 2017-2018 increased their risk of getting other respiratory viruses. The overall results of the study showed little to no evidence supporting the association of virus interference and influenza vaccination. Examining virus interference by specific respiratory viruses showed mixed results. Vaccine derived virus interference was significantly associated with coronavirus and human metapneumovirus; however, significant protection with vaccination was associated not only



with most influenza viruses, but also parainfluenza, RSV and non-influenza virus coinfections.

[LI et al \(2020\) Modeling the impact of mass influenza vaccination and public health interventions on COVID-19 epidemics with limited detection capability⁷](#)

In the present study, we devised a mathematical model focusing on the treatment of people complaining of influenza-like-illness (ILI) and were potentially at risk of contracting COVID-19 or other emerging/re-emerging respiratory infectious agents during their admission at the healthcare setting. The model is used to assess the effect of mass influenza vaccination on the spread of COVID-19 and other respiratory pathogens in the case of a coincidence of the outbreak with the influenza season. Here, we show that increasing influenza vaccine uptake or enhancing the public health interventions would facilitate the management of respiratory outbreaks coinciding with the peak flu season.

[ZHANG et al \(2020\) Potential Interventions for Novel Coronavirus in China: A Systematic Review⁸](#)

The authors conducted an online search for all treatment options related to coronavirus infections. It is suggested that the nutritional status of each infected patient should be evaluated before the administration of general treatments and that the current children's RNA-virus vaccines including influenza vaccine should be administered to all uninfected people and healthcare workers.

[SALEM et al \(2020\) \[Letter to the Editor\] The possible beneficial adjuvant effect of influenza vaccine to minimize the severity of COVID-19⁹](#)

The authors present the hypothesis that the resultant immunity against prior influenza infection would, at least in part, foster immunity against SARS-CoV-2. It is suggested that due to the cross reactivity between Flu and SARS-CoV-2, the Flu-induced bystander immunity is of more beneficial effect to COVID-19 than those suggested by MMR and BCG vaccines. In conclusion the authors recommend the use of Flu vaccine, at least in part, as a bystander adjuvant to minimize the severity of COVID-19 disease.



[SKOWRONSKI et al \(2020\) Influenza vaccine does not increase the risk of coronavirus or other non-influenza respiratory viruses: retrospective analysis from Canada, 2010-11 to 2016-17¹⁰](#)

Influenza vaccine effectiveness against influenza and non-influenza respiratory viruses (NIRV) was assessed by test-negative design using historic datasets of the community-based Canadian Sentinel Practitioner Surveillance Network (SPSN), spanning 2010-11 to 2016-17. Vaccine significantly reduced the risk of influenza illness by >40% with no effect on coronaviruses or other NIRV risk.

[AROKIARAJ \(2020\) \[Preprint\] Correlation of Influenza Vaccination and the COVID-19 Severity¹¹](#)

The current analysis was performed to correlate the severity of COVID-19 and influenza (H1N1) vaccination statistics. There is a correlation between COVID-19 related mortality and morbidity and the status of influenza vaccination, which appears protective. The tendency of correlation is more visualized as the pandemic is evolving. The case incidence and recovery parameters also showed a beneficial trend. Since evolutionarily influenza is close to SARS-CoV-2 viruses and shares some common epitopes, there is a possibility of partial protection to reduce the COVID-19 related severity using the influenza vaccination.

OTHER

[HPSC \(2020\) Influenza vaccines to be made available without charge to all children aged 2 – 12 and all risk groups¹²](#)

This news item clearly outlines who is included in the influenza at risk groups.

[FICHERA \(2020\) No evidence that flu shot increases risk of COVID-19¹³](#)

Fichera debunks a claim being pushed on social media and by an organization skeptical of vaccines using a military study to falsely suggest that the flu vaccine increases someone's risk of contracting COVID-19.



[DEPARTMENT OF HEALTH AND SOCIAL CARE, PUBLIC HEALTH ENGLAND & NHS ENGLAND \(2020\) National flu immunisation programme plan for 2020 to 2021¹⁴](#)

Document outlines which groups are eligible for flu vaccination with reference to the universal vaccination of health and care workers.

[NACI \(2020\) Summary of the NACI Seasonal Influenza Vaccine Statement for 2020–2021¹⁵](#)

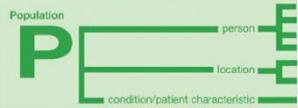
The National Advisory Committee on Immunization (NACI) provides annual recommendations to the Public Health Agency of Canada regarding the use of seasonal influenza vaccines. NACI recommend that healthcare workers and other care providers in facilities and community settings should be vaccinated annually against influenza and that this group be included among those particularly recommended to receive the influenza vaccine.

NACI also recommend that an age-appropriate influenza vaccine should be offered annually to anyone six months of age and older who does not have contraindications to the vaccine, with a focus on the groups for whom influenza vaccination is particularly recommended.



Produced by the members of the National Health Library and Knowledge Service Evidence Team[†]. Current as at 12 June 2020. This evidence summary collates the best available evidence at the time of writing and **does not replace clinical judgement or guidance**. Emerging literature or subsequent developments in respect of COVID-19 may require amendment to the information or sources listed in the document. Although all reasonable care has been taken in the compilation of content, the National Health Library and Knowledge Service Evidence Team makes no representations or warranties expressed or implied as to the accuracy or suitability of the information or sources listed in the document. This evidence summary is the property of the National Health Library and Knowledge Service and subsequent re-use or distribution in whole or in part should include acknowledgement of the service.

The following PICO(T) was used as a basis for the evidence summary:

	GENERAL POPULATION
	INFLUENZA VACCINATION
	
	INCREASED RISK OF CONTRACTING COVID-19?

The following search strategy was used:

2019-nCoV OR 2019nCoV OR COVID-19 OR SARS-CoV-2 OR ((wuhan AND coronavirus) AND 2019/12[PDAT]:2030[PDAT])

and

[†] (((influenza[Title/Abstract] OR (flu[Title/Abstract]))) AND (vaccination[Title/Abstract] OR vaccine[Title/Abstract] OR immunization[Title/Abstract] OR immunisation[Title/Abstract]))



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- ¹HPSC (2020) <https://www.hpsc.ie/a-z/respiratory/influenza/seasonalinfluenza/> [Accessed 12 June 2020]
- ²WHO (2020) Guiding principles for immunization activities during the COVID-19 pandemic: interim guidance. <https://www.who.int/publications-detail/guiding-principles-for-immunization-activities-during-the-COVID-19-pandemic-interim-guidance> [Accessed 12 June 2020]
- ³WHO (2020) Framework for decision-making: implementation of mass vaccination campaigns in the context of COVID-19. <https://www.who.int/publications-detail/framework-for-decision-making-implementation-of-mass-vaccination-campaigns-in-the-context-of-COVID-19> [Accessed 12 June 2020]
- ⁴European Vaccination Information Portal. <https://vaccination-info.eu/en> [Accessed 12 June 2020]
- ⁵CDC (2020) <https://www.cdc.gov/flu/prevent/misconceptions.htm> [Accessed 12 June 2020]
- ⁶Wolff GG. (2020) Influenza vaccination and respiratory virus interference among Department of Defense personnel during the 2017-2018 influenza season. *Vaccine*. 2020;38(2):350- 354. doi:10.1016/j.vaccine.2019.10.005. <https://pubmed.ncbi.nlm.nih.gov/31607599/> [Accessed 12 June 2020]
- ⁷Li Q, Tang B, Bragazzi NL, Xiao Y, Wu J. Modeling the impact of mass influenza vaccination and public health interventions on COVID-19 epidemics with limited detection capability [published online ahead of print, 2020 May 16]. *Math Biosci*. 2020;325:108378. doi:10.1016/j.mbs.2020.108378 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7229764/> [Accessed 12 June 2020]
- ⁸Zhang L, Liu Y. Potential interventions for novel coronavirus in China: A systematic review. *J Med Virol*. 2020;92(5):479- 490. doi:10.1002/jmv.25707 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7166986/> [Accessed 12 June 2020]
- ⁹Salem ML, El-Hennawy D. The possible beneficial adjuvant effect of influenza vaccine to minimize the severity of COVID-19 [published online ahead of print, 2020 Apr 22]. *Med Hypotheses*. 2020;140:109752. doi:10.1016/j.mehy.2020.109752 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7194943/> [Accessed 12 June 2020]
- ¹⁰Skowronski, DM et al (2020) Influenza vaccine does not increase the risk of coronavirus or other non-influenza respiratory viruses: retrospective analysis from Canada, 2010-11 to 2016-17, *Clinical Infectious Diseases*, ciaa626, <https://doi.org/10.1093/cid/ciaa626> <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciaa626/5842161> [Accessed 12 June 2020]
- ¹¹Arokiaraj, Mark Christopher. Correlation of Influenza Vaccination and the COVID-19 Severity. [preprint, 10 April 2020] Available at SSRN: <https://ssrn.com/abstract=3572814> or <http://dx.doi.org/10.2139/ssrn.3572814> https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3572814 [Accessed 12 June 2020]
- ¹²HPSC (2020) Influenza vaccines to be made available without charge to all children aged 2-12 and all risk groups. <https://www.hpsc.ie/news/influenza-vaccines-to-be-made-available-without-charge-to-all-children-aged-2-12-and-all-risk-groups.html> [Accessed 12 June 2020]
- ¹³Fichera (2020). No evidence that flu shot increases risk of COVID-19. <https://www.factcheck.org/2020/04/no-evidence-that-flu-shot-increases-risk-of-COVID-19/> [Accessed 12 June 2020]
- ¹⁴Department of Health and Social Care, Public Health England, and NHS England (2020) National flu immunisation programme plan for 2020 to 2021 <https://www.gov.uk/government/publications/national-flu-immunisation-programme-plan> [Accessed 12 June 2020]
- ¹⁵NACI(2020) Summary of the NACI Seasonal Influenza Vaccine Statement for 2020–2021. *Can Commun Dis Rep* 2020;46(5):132–7. <https://doi.org/10.14754/ccdr.v46i05a06> <https://www.canada.ca/content/dam/phac-aspc/documents/services/reports-publications/canada-communicable-disease-report-ccdr/monthly-issue/2020-46/issue-5-may-7-2020/ccdrv46i05a06-eng.pdf> [Accessed 12 June 2020]