

# Dementia, infections and vaccines: 30 years of controversy

Ecartot et al., published a summary of the findings of a European Interdisciplinary Council for Aging meeting convened in November 2022. In this meeting, the available evidence on the link between infection, neurological disorders and dementia, in particular, Alzheimer's disease (AD), was reviewed

The paper includes a review of the involvement of specific pathogens (SARS-CoV-2, HIV, HSV1, and influenza) in neurological disorders. In this infographic, we have focused on key findings relating to influenza only

The microbial hypothesis of AD postulates that aging and weakening of the blood brain barrier and the immune system due to infection or age-related processes, together enable infection of the healthy brain by viruses, bacteria or other pathogens

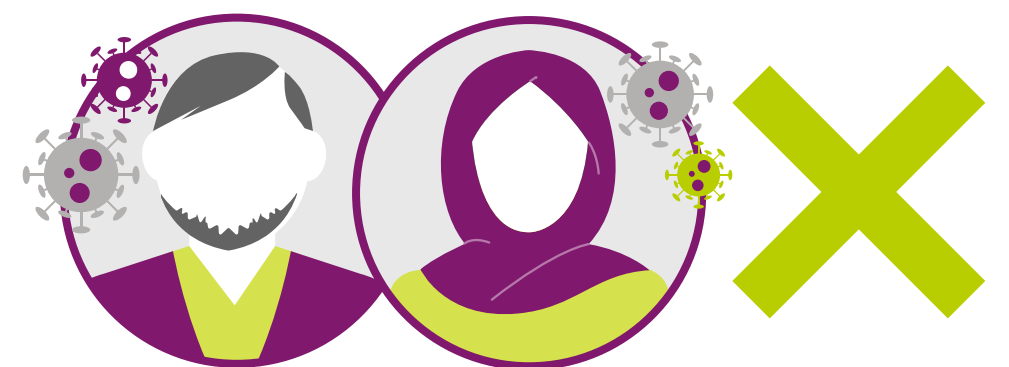
## INFLUENZA AND DEMENTIA

Preclinical studies showed that **pandemic H5N1**, or other neurotropic influenza viruses, could be capable of initiating CNS disorders such as **Parkinson's disease** or **AD**



Overall, the literature does not support a significant association of influenza infection and dementia in humans

Several methodological issues may have impacted these findings, however



## POSSIBLE EFFECT OF INFLUENZA VACCINATION ON DEMENTIA

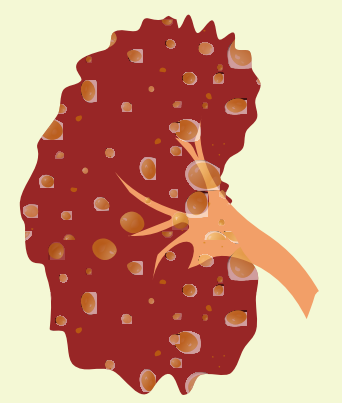
Past exposure to certain vaccines may protect against subsequent development of AD



- Diphtheria
- Tetanus
- Poliomyelitis
- Influenza

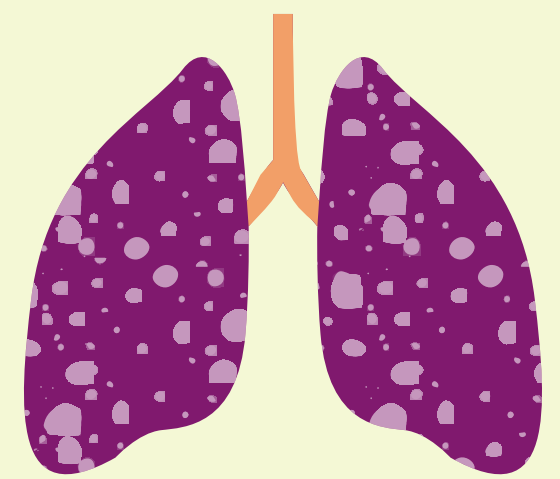
Influenza vaccination reduced dementia risk in chronic kidney disease patients:

- 11,943 patients
- National Health Insurance Research Database of Taiwan
- Dose-dependent vaccine effect
- Vaccine effect greater in >70 yrs



Influenza vaccination reduced dementia risk in patients with COPD:

- 19,848 patients from Taiwan
- Aged >60 yrs with COPD
- Dose-dependent vaccine effect
- aHR for dementia 0.68 in vaccinated vs unvaccinated patients (95% CI 0.62–0.74, P<0.001)



Influenza vaccination significantly reduced the risk of AD in a study of **935,887 vaccinated vs unvaccinated** matched pairs of US adults aged ≥65 yrs



A recent systematic review and meta-analysis confirmed that influenza vaccination was associated with a significantly lower risk of **dementia** in older individuals



*There is a large body of evidence supporting the involvement of various pathogens in the pathogenesis of dementia, but large-scale studies with long-term follow-up are needed to elucidate the role that infection may play, especially before subclinical or clinical disease is present*

To read more go to:

[Dementia, infections and vaccines: 30 years of controversy - PubMed \(nih.gov\)](#)

To download a copy of this infographic visit the Nivel FluCov website: [FluCov: Influenza-COVID-19, understanding and communicating the impact of COVID-19 on influenza activity | Nivel](#)

AD, Alzheimer's disease; aHR, adjusted hazard ratio; CI, confidence interval; CNS, central nervous system; COPD, chronic obstructive pulmonary disease; HIV, human immunodeficiency virus; HSV1, herpes simplex virus type 1; SARS-CoV-2, Severe acute respiratory syndrome coronavirus 2; US, United States.

Reference: Ecartot F, et al. Dementia, infections and vaccines: 30 years of controversy. Aging Clin Exp Res 2023;35(6):1145-1160.