

Influenza and vaccination for older people

*This factsheet provides information for influenza **disease and vaccination in older people**, for more information on adjuvanted vaccines, see factsheet: [Adjuvanted and non-adjuvanted flu vaccines](#).*

Influenza vaccination supports healthy ageing and maintenance of independence for older people

Influenza vaccination provides older people with low to modest protection against influenza infection³⁻⁶ but can also reduce influenza disease severity^{7,8} and complications^{7,9,10} in older people who have been vaccinated but subsequently get influenza. Influenza-related death,^{4,11} hospitalisation,^{4,11,12} and increases in disability or frailty^{13,14} are lower in older people who receive influenza vaccination compared with those who do not. It has recently been recognised that acute influenza may be followed by ongoing health issues. In the year following acute influenza hospitalisation, people require more healthcare and have increased adverse health outcomes.⁷²

Influenza vaccine efficacy for the prevention of acute myocardial infarction (AMI) following influenza is between 19% and 45%,⁹ which is similar to the effect of other measures to lower cardiovascular disease risk factors such as smoking cessation, use of statins and treatment of hypertension.⁹ Repeated annual influenza vaccination has a positive cumulative effect of greater protection against influenza complications and hospitalisation compared with only ever being vaccinated against influenza once.^{7,15-20}

Aging and the serious impact of influenza infection

The natural decline in immune function associated with ageing can increase an older person's vulnerability to both the risk of infectious disease and serious complications. This is known as immunosenescence.²¹⁻²⁴

Disease complications in older people with influenza include pneumonia,²⁵⁻²⁹ secondary bacterial infection^{30,31}, acute coronary syndrome^{18,19} (including AMI)^{9,32,17,33}, heart failure³⁴, ischaemic stroke^{14,15,35}, haemorrhagic stroke³⁶, exacerbation of asthma³⁷ and increased frailty.^{29,38}

Influenza may also exacerbate chronic underlying conditions^{26-28,30}, including cardiovascular disease^{34,39}, ischaemic heart disease (IHD)⁴⁰, heart failure^{17,35,41}, diabetes and chronic obstructive pulmonary disease (COPD).⁴²

Influenza increases the risk of mortality

Mortality is significantly higher in older people with influenza^{1,28,43,44} than younger healthy adults with influenza.⁴⁴ The risk of influenza-related death increases with advancing age, the presence of chronic conditions, or increasing levels of frailty.^{26,28}

Influenza increases the risk of hospitalisation

The risk of influenza-related hospitalisation is greater for older people compared with healthy adults aged under 65 years.^{26-29,45,54} Increasing levels of frailty^{29,46,47,54} and the presence of chronic conditions such as diabetes or heart, kidney, neurological or respiratory diseases^{27-29,44,54} add to the risk of influenza-related hospitalisation.

Influenza increases the risks of disability and frailty

Older people have lower physiological reserves to aid a return to pre-illness function.¹³ Periods of restricted activity or hospitalisation related to illness or injury in older people living in the community are significant causes of ongoing inability to perform activities of daily living (ADLs).^{46,29}

Following hospitalisation of older people living in the community with an illness such as influenza, inability to perform ADLs was substantially higher in those who required admission to an intensive care unit (ICU) than those who did not.¹³ In a review, 10–63% of older people admitted to an ICU experienced new or worsened disability with ADLs during the year after discharge. The disability persisted beyond the first year in 22–37% of these people.¹³

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Admission of older adults to an ICU has been shown to be related to a two-fold increase in outcomes such as polypharmacy, urinary incontinence, depression, immobility, faecal incontinence and cognitive impairment in the subsequent 12 months.⁴⁸ The survival rate of older people has also been shown to be reduced following discharge from an ICU, ranging from two-thirds at 6 months⁴⁹ to around half at 12 months⁴⁸ (66% and 49%).^{48,49}

The importance of influenza vaccination for older people extends beyond prevention of acute infection. Prevention of disease or reduction in disease severity and complications is critical for older people to help prevent the sequelae of increasing dependence, frailty and premature death associated with illness.^{13,29,46,48-50}

Increasing the number of older people vaccinated against the disease annually can have a significant impact on improving health outcomes in older people^{12,51} when influenza is circulating in our community.

Effectiveness of influenza vaccination in older people

Protection against infection

Evidence suggests the effectiveness of influenza vaccination in the older person living in the community is low to modest, depending on the vaccine.^{4,5,60} Demcheli et al. (2018) updated their 2010 Cochrane Review and suggest non- adjuvanted vaccine effectiveness is 58% (34–73%) against laboratory-confirmed influenza.⁶ Advancing age^{22,24} and increasing frailty³ limit an older person's response to vaccines and decrease vaccine efficacy against acute infection. The use of adjuvanted influenza vaccine (FluadQuad) can enhance the immune response in older adults and increase protection against the influenza infection and complications.⁶⁰⁻⁶⁵

Additional preventative strategies to reduce older people's risk of exposure to influenza are also important. These include influenza vaccination of those who are in close contact with older people, for example living or working with older people. A reduction in circulating influenza disease/increase in herd immunity in the community through increased influenza vaccination coverage provides extra protection for the older person as it reduces the likelihood of transmission of influenza to the older person.^{66,67}

Protection against serious complications

Older people who have been vaccinated but subsequently get influenza are less likely to develop a severe illness,^{7,8} be hospitalised^{4,11,12,68} or require admission to an intensive care unit.⁴³ Non-adjuvanted influenza vaccination has also been associated with a 36% (95% confidence interval 16–51%) lower risk of major adverse cardiovascular events, ie, hospitalisation or death related to unstable angina, coronary artery obstruction requiring urgent revascularisation, acute myocardial infarction(AMI), heart failure, or ischaemic stroke.³⁴

Studies show influenza vaccine efficacy for the prevention of AMI during the year following influenza illness is between 19% and 45%,⁹ which is similar to other measures to reduce cardiovascular disease risk factors such as smoking cessation (32–43%), statin use (19–30%) and treatment of hypertension (17–25%).⁹

A review of 15 influenza seasons in Italy,⁶³ where around two-thirds of older adults received a MF59 adjuvanted influenza vaccine and one-third a non-adjuvanted vaccine, compared hospitalisations for pneumonia, cerebrovascular, and cardiovascular events in the two vaccine groups. Receipt of the MF59 adjuvanted vaccine was associated with a 39% (95% confidence interval 4–61%) reduction in the risk of hospitalisations for these three conditions compared with receipt of the non-adjuvanted vaccine.⁶³ A Spanish study⁶⁹ comparing older people who received an MF59 adjuvanted influenza vaccine with those who were unvaccinated showed a reduced risk of hospitalisation during the 2004/2005 influenza season, with acute coronary syndrome of 87% (95% confidence interval 35–97%) or with a cerebrovascular accident of 93% (95% confidence interval 52–99%) in the vaccinated group. However, this effect was not shown to persist after the influenza season ended.⁶⁹

A study in 2016–2017 compared the efficacy of an adjuvanted trivalent influenza vaccine and a nonadjuvanted trivalent vaccine in older adults (n = 50,012) residing in 823 U.S. nursing homes. Results showed resident hospitalisation rates were lower for those who received the adjuvanted vaccine, compared to the nonadjuvanted vaccine. However, the respiratory hospitalisation rate was similar across both cohorts.⁶⁵

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In the following U.S. influenza season (2017–2018), a similar study aiming to evaluate the efficacy of adjuvanted trivalent influenza vaccines compared to high-dose trivalent vaccines and other egg-based influenza vaccines in similar age groups (≥ 65 years), showed that the adjuvanted vaccine was more effective in reducing influenza-related primary care consultations and other respiratory-related hospitalisations/emergency room visits.⁷⁰

Influenza vaccination is increasingly being shown to have a role in reducing influenza-related complications including heart failure,^{17,35,39} haemorrhagic stroke,³⁶ acute coronary syndrome,^{18,19} and respiratory failure⁴² in older people with underlying chronic conditions. Influenza vaccine effectiveness against pneumonia for the older person living in the community and the frail older person living in care range from 25% to 53%.¹⁰ Vaccination of frail older people is still very important as it can reduce their risk of influenza-related hospitalisation,¹¹ pneumonia^{10,71} or death.^{4,11}

An increasing body of evidence supports the important role of prior and current season influenza vaccination in reducing the risk of influenza-related hospitalisation with severe illness^{7,15}, ischaemic stroke^{14,16}, heart failure¹⁷, and acute coronary syndrome^{18,19} or respiratory disease.¹⁹ Vaccinated adults with heart failure are more likely to survive if they have received regular annual influenza vaccinations.⁴¹

Safety of influenza vaccination in older people

As well as the common influenza vaccination responses, headache, muscle aches and fatigue may occur in older adults.^{52,53} Symptoms may appear influenza-like. However, the influenza vaccines used in New Zealand do not contain live viruses⁵⁴ and cannot cause influenza.

Influenza vaccination does not increase the risk of being infected with the SARS-CoV-2 (COVID-19) virus or any other respiratory virus.^{55,56} Studies of adults aged 65 years or older in Italy and the U.S. who were diagnosed with COVID-19 disease in 2020 and who had received a Northern Hemisphere influenza vaccination in the 2019–2020 season do not suggest that influenza vaccination has a negative effect on COVID-19 disease. In a province in Italy, in a study of around 17,500 older adults who were diagnosed with COVID-19 disease, those who had received influenza vaccination were less likely to be diagnosed with COVID-19 disease than those who had not been vaccinated, and influenza vaccination had no effect on the risk of hospitalisation or death.⁵⁷

A review of COVID-19 disease and deaths in adults aged 65 years or older across Italy found that in areas with high influenza vaccination coverage, less COVID-19 disease-related deaths occurred in older adults.⁵⁸ In the U.S., a similar relationship between influenza vaccination coverage and less COVID-19-related deaths in older adults was seen.⁵⁹

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