Toi Te Ora Public Medical Officers of Health Report
February 2018

Influenza

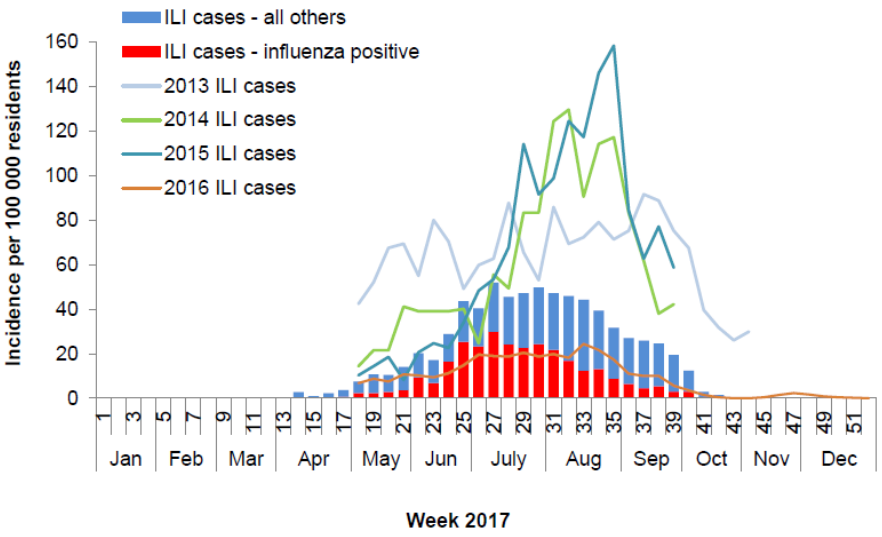
It's that time of year again when much of the health service starts gearing up for the inevitable winter peak in demand. A fair proportion of this additional workload relates to the higher rate of infectious respiratory illnesses during the colder months, influenza being one of the main culprits.

Birds are the main reservoir of the over 100 different strains of influenza viruses with just a small number of strains affecting humans. We are essentially incidental hosts. Influenza viruses are genetically unstable with mutations, and re-assortment of genetic material between different influenza viruses, frequently occurring. As a result the World Health Organisation decides which strains of influenza should be represented in the annual vaccine on the basis of the predominant strains circulating in preceding months. The genetic instability of the virus also results in the perennial risk that the next strain of influenza may be so different to previous strains that it results in a pandemic, by definition an epidemic affecting all countries at the same time. While there were just three pandemics during the 20th century it's worth remembering that we experience an epidemic of influenza pretty much every winter with the main differences year by year being the severity of the resulting illness, its timing during the winter months and the proportion of the population that's affected. People die from influenza every year with the usually quoted death rate being about one case for every thousand people who get the illness, or 0.1%. In the 1918/19 pandemic the global death rate was closer to 20% of all cases.

Each person who contracts influenza on average infects up to two others. However, this often occurs before the individual has any symptoms making the usefulness of preventive infection control measures, such as isolation, very difficult and relatively ineffective. The generation time for influenza is extremely short; the time from a person becoming infected to when he/she infects the next person is only two days. This results in influenza spreading very rapidly through a community.

Figure 1 shows the timing and level of reported influenza activity (ILI is shorthand for influenza like illness, defined as fever greater than 38 degrees, plus cough or sore throat) for each of the past five years in New Zealand. In this period 2015 was the peak year of influenza activity with a rate at least seven times greater than that in 2016, the "quietest" year. In 2017 the peak occurred at the start of July but in 2012 it was in mid September.

Figure 1. Weekly resident ILI and influenza incidence since 2 January 2017



While we'll never get rid of influenza there are some very practical steps that can be taken to significantly reduce its incidence. Attention to practical personal hygiene measures such as hand-washing and not coughing over other people makes a difference. And then there's vaccination which is the only measure specifically designed to reduce the risk of contracting influenza. Like all vaccines the influenza vaccines are not 100% effective but those licenced for use in New Zealand have each been shown to significantly reduce the risk of contracting one of the prevailing strains of influenza. They each also have an excellent safety profile. In particular it is not possible to get influenza from any of the vaccines.

A recent study http://m.pnas.org/content/early/2018/01/17/1716561115.full.pdf confirmed the presence of influenza virus in the exhaled breath of some college students who had symptoms of influenza. Being fit and healthy does not protect against influenza. Being vaccinated each year does significantly reduce the risk. Health care professionals have an extra responsibility to be vaccinated in order to protect their patients. Of course health professionals working in certain parts of the health service are also at higher risk of contracting influenza as they are more likely to come into contact with patients who themselves are being treated for influenza.

Phil Shoemack
Medical Officer of Health