

# Flu 2017 - The Good News And The Bad News



By Josh Bloom — September 8, 2017



Will this year's flu season be a doozie?

[1]

New reports out of Australia contain some sobering news. The number of influenza cases this year is **2.5-times** [2] that of the same time period last year. Since the flu season down under begins in July, these data may give us a glimpse of what to expect in the US this winter. New South Wales, which has the highest population of any state in the country, had more than 35,000 confirmed flu cases in August. To put this in perspective, the previous record for most cases in a month was 16,686 this past July. August 2016 had 13,602 cases and August 2015 had 12,901. (Figure 1, below)

Influenza (A, B, Not specified) notifications in NSW residents, by month of disease onset. January 2013 to August 2017

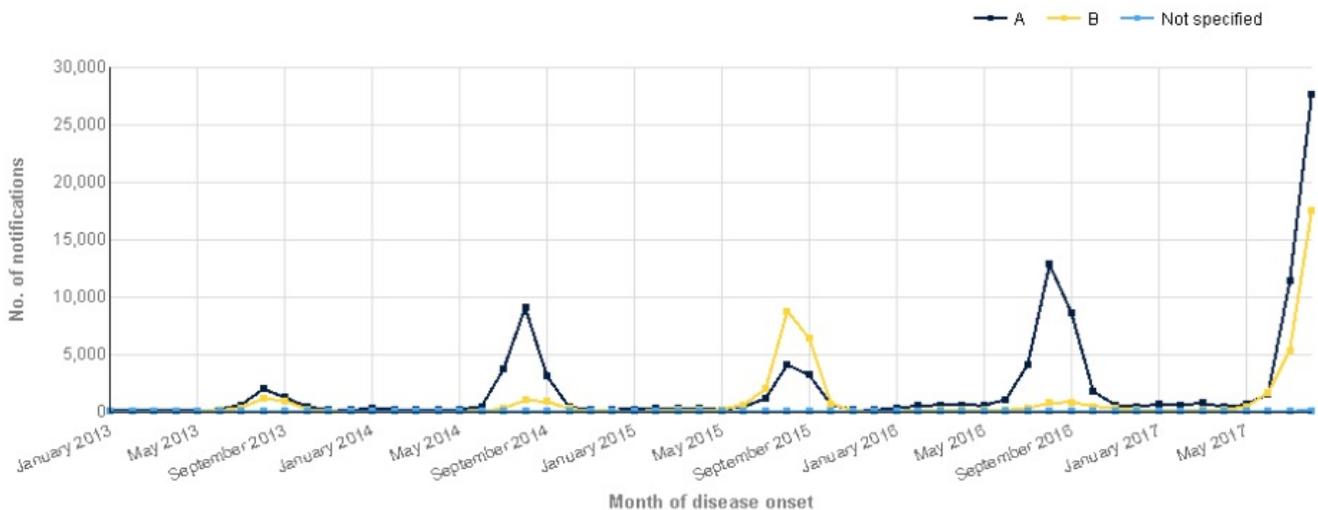


Figure 1; The number of influenza cases in New South Wales by month and year. Source: [New South Wales Government Health](#) [3]

## A very bad year

Clearly, the flu is hitting Australia very hard. Does this mean that we are in particular danger this year? Dr. Anthony Fauci, head of the National Institute of Allergy and Infectious Diseases (NIAID) says not necessarily, because of the unpredictability of the virus.

*"There's nothing really unusual about this year except that it's a high year in Australia, which is what you see every once in a while... [Australia's curve] is clearly much higher than the curve of last year... All the flu-ologists, myself included, say the only thing that you can predict about influenza is that it's going to be unpredictable."*

*Dr. Anthony Fauci, head of the National Institute of Allergy and Infectious Diseases*

## Good news, bad news

Although it is troubling to see a record number of cases in Australia, the good news is that this year's vaccine matches quite well with the predominant Australian strain, H3N2 (1). The bad news is that vaccines are less effective against H3N2, which causes more severe disease than most other strains. Dr. Vicky Sheppeard, the director of communicable diseases at the New South Wales Health Department explains:

*[Early data indicates the four flu strains in the vaccine are well-matched to circulating viruses," [but] It is known that one of the strains in the vaccine [H3N2] is less effective in preventing infection, despite a good match."*

*Dr. Vicky Sheppeard, the director of communicable diseases, NSW Health*

So, even though, as Dr. Fauci points out, that vaccine which will be used this year is "essentially identical" to the vaccine being used in Australia, "An intelligent guess, therefore, is that the north will probably have a bad flu season."

And, just like the composition of each year's vaccine, which must be decided six months before the start of the flu season (2), predicting what the flu will finally do is at best as an educated guess. Dr. Paul Offit, the chief of the division of infectious diseases at Children's Hospital of Philadelphia, and a former American Council advisor concurs.

*Preventing influenza infections is one of the most difficult tasks in medicine. Every year the virus mutates. Some years the virus is particularly aggressive; some years not. It's like predicting the stock market.*

*Dr. Paul Offit, the chief of the division of infectious diseases at Children's Hospital of Philadelphia*

What to do? As is the case frequently in medicine, there is no ideal drug or vaccine for a particular condition. So the risks of an imperfect treatment must be weighed against its benefits. With flu, this is a no-brainer. Even in years where the coverage (match of circulating strains and those in the vaccine) is terrible (3), I roll up my sleeve. Flu is a very serious disease (4) and the vaccine is very safe. Adverse effects, if any, are mild and transient. One serious adverse effect, Guillain-Barré syndrome (GBS) is estimated to occur in [1-2 people per million vaccinations](#) [4].

There is the information. I hope you make the right decision.

Notes:

(1) H stands for hemagglutinin, a viral surface protein, which is responsible for binding the virus to the host cell and enabling it to fuse with the host cell membrane, allowing it to penetrate the cell. N stands for neuraminidase, a viral enzyme that is responsible for cleaving the virus from the membrane once it enters the cell. Both proteins are essential for replication of influenza virus.

(2) Selecting the strains covered in each year's vaccine is a daunting task. Investigators must make an educated guess of which strains to include based on predominant strains circulating in Asia and Australia six months in advance since it takes that long to grow the vaccine in eggs. Sometimes the predominant strain in Asia will end up not being the predominant strain in the US. Worse still, even when the circulating strains and those chosen for the vaccine may be a perfect match, the vaccine can still be ineffective. This is partly because the virus can mutate during that time, which renders the vaccine less effective, or even ineffective.

(3) The 2014-5 season vaccine was very ineffective. It reduced illness by [only 19%](#) [5] far less than a "good" vaccine ([50-60%](#)) [6]. But 19% is still better than nothing.

(4) Flu kills between 3,300 and 49,000 people per year in the US. The average is about 36,000. For perspective, here are annual mortality figures for selected cancers;

- Breast - 40,000
- Prostate - 27,000
- Colon - 50,000
- Lung - 156,000

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