

Response to claims about Celvapan made by Ms Katherine Smith, herbalist and activist.

While there is an abundance of information about vaccines on the internet, much of it is personal opinion, not all of high quality or scientifically robust. Health professionals depend on good scientific evidence in fields such as immunology, microbiology and epidemiology to make decisions about vaccines. It is vital that their decisions are evidence based. The claims made by Ms Smith are based largely on media articles and internet sites and contain omissions of important information from the medical literature.

Claim

...fears that the new A/H1N1 strain would turn out to be devastating have proved to be largely groundless with NZ's influenza death rate being comparable to that of seasonal influenza.

Fact

We can never know ahead of time how devastating a pandemic will be prior to it starting.

Many past pandemics have been severe, so it is appropriate for the international community to plan for a severe pandemic. It is only as a pandemic evolves and the data is collected that more accurate predictions of death rates can be made. It is important that the world prepares for a potentially severe pandemic because to not take the threat seriously is neither safe nor ethical when we have the technology and infrastructure to minimise human suffering.

Furthermore pandemic influenza is still a significant illness for our community, as is the regular seasonal influenza.

It is not known exactly what the annual influenza fatalities are as many deaths are the result of complications from other conditions that flu can exacerbate; therefore it is not possible to directly compare mortality from seasonal and pandemic influenza. Many deaths occur each year as a result of complications from influenza illness such as pneumonia or heart failure. NZ data estimates that there is an average of 400 deaths a year attributed to influenza.¹ What is known is that influenza places a significant burden on society and the health system each year and there are many deaths associated with the disease. A new pandemic strain affects more people as it is a strain most people have never experienced before: hence there are increased rates of hospital admissions and deaths as overall more people are getting sick. Although the new A/H1N1 strain of influenza ('swine flu') is not life threatening to most people, to date it has infected many thousands of New Zealander's with over 3265 notified (sick enough to attend a doctor) and 1009 of these individuals hospitalised ².

Claim

Baxter International's recent safety record in the production of biological products is very poor. You may recall the problems with the company's Heparin in 2008 in which at least four people died due to the product's being contaminated, while hundreds more became ill as a result of its use. An investigation into this debacle found that Baxter was sourcing raw materials from an uncertified Chinese factory that had never been inspected by the Chinese drug regulators.....

Fact

Heparin is a medicine used in certain medical conditions to thin blood and prevent clots and strokes. Contamination has been a problem for heparin products worldwide and not just from Baxter.

In January 2008 the USA Centre for Disease Control (CDC) began investigating severe adverse events detected in a single haemodialysis unit. A common feature was the administration of heparin produced by Baxter Healthcare. On January 17, nine lots were voluntarily recalled and Baxter recalled the balance of its heparin in February 2008. In March 2008 the FDA announced that the Heparin had been contaminated with oversulphated chondroitin sulphate 3 4 (chondroitin sulphate is a structural component of cartilage and along with glucosamine, chondroitin sulphate is a widely used dietary supplement). Oversulphated chondroitin sulphate (OSCS) was a previously unknown contaminant. OSCS has different biological activities than chondroitin sulphate and can activate mediators that cause vasodilation as well as generate anaphylatoxins providing a biological link to the adverse events observed. This case is well described in the New England Journal of Medicine 359;25:2674-2684.

In addition to the high number of serious adverse events associated with heparin, there are the four events mentioned above occurring at the Beebe Medical Centre in Delaware which occurred following a US manufactured Heparin containing North American sourced raw materials. It was concluded that heparin did not contribute to their deaths. Additionally, this is irrelevant to the potential safety of Celvapan™.

Claim

In February 2009, Baxter distributed to sixteen labs in four different countries a bulk seasonal (H3N2) influenza vaccine product that was contaminated with live bird flu (H5N1) viruses. This could potentially have sparked a deadly H5N1 influenza pandemic, but fortunately staff in a Czech laboratory discovered the problem in time.

Fact

It is true that vaccine raw material contaminated with H5N1 influenza virus (not vaccine) were supplied by Austria to a series of European laboratories; however it is extremely unlikely that any human vaccine would have emerged from this. There are many points of quality control during vaccine development and manufacture where contamination with another virus would be detected. Despite the fact that this contamination was a serious event, this was not a product that was remotely close to a finished human vaccine.

Claim

.....as is the decision to continue a vaccine supply agreement with CSL despite an FDA inspection of its Australian vaccine production factory which found numerous safety code violations.

Fact

CSL Limited is fully FDA (USA licensure body) certified and compliant for the manufacture of vaccines: The facility at Parkville is both modern and world-class. Additionally, if this were true then the USA would not have been the first country to licence the CSL monovalent H1N1 (Swine Flu) Vaccine. Nor would CSL be supplying Fluvax under the brand name Afluria to the US since 2007.

<http://www.medicalnewstoday.com/articles/84072.php>

<http://www.news-medical.net/news/20091112/FDA-approves-CSL-Biotherapies-seasonal-flu-vaccine-Afluria-for-children.aspx>

Claim

Baxter's A/H1N1 influenza vaccine ("Celvapan") is produced in "Vero cells" which are derived from green monkey kidney tissue. Cell lines of this type have the potential to be contaminated with viruses such as Simian Virus 40 (SV40) a monkey virus of known oncogenic (tumour producing) potential.....

Fact

The VERO cell line has been used for decades in vaccine production, as well as for many other purposes. It is extremely well characterised and there is no evidence that it is associated with tumours. Modern techniques such as Polymerase Chain Reaction (PCR) can detect a wide range of potential contaminants including viruses. The historical contamination of polio vaccine with SV40 virus occurred 50 years ago, prior to the development of methods to detect contaminants. Since the early 1960s viral contamination is able to be detected.

Claim

The Minister of Health responded to a request made under the Official Information Act (OIA) by stating that the Vero cell line used by Baxter has been tested and found to be free from SV40. However, he refused to release the documents necessary to prove this assertion. (This refusal is currently the subject of a complaint to the Ombudsman.).....

Fact

Many years of documentation about the characterisation and safety of the VERO cell line and history of SV40 contamination is publicly available via many sources.

Immunization Safety Review: SV40 Contamination of Polio Vaccine and Cancer

http://books.nap.edu/catalog.php?record_id=10534

Claim

.....Potential side effects of concern for Celvapan include sudden hearing loss, paresthesia, arthralgia (from H5N1 influenza vaccine trials) while post marketing surveillance of H1N1 influenza vaccine recipients include convulsions, anaphylaxis and influenza-like illness, among others.....

Fact

Events reported on a datasheet as well as those reported in post marketing surveillance are not necessarily caused by the vaccine. Data sheets list any events that occurred following administration of vaccine, or placebo. The risk for events caused by the vaccine are estimated by comparing these events in people who received the vaccine with those that have not received the vaccine.

Claim

.....pregnant women vaccinated with A/H1N1 influenza vaccines in North America have reported foetal death and miscarriages.

Fact

The source for this appears to be blog sites. It is not possible to assess vaccine safety based on personal anecdote and internet blog sites. While live vaccines are not recommended during pregnancy, inactivated and subunit vaccines such as most of the influenza vaccines can be used without increased risk of adverse events and a number of vaccines (including influenza vaccines) are recommended. There is good evidence to show that influenza vaccines reduce the incidence of influenza in both mother and new infant³.

Claim

....influenza vaccines have a long history of producing disappointing results in terms of preventing influenza or influenza like illness....

Fact

The value of influenza vaccines is not in question⁴, however how best to use them is a topic of constant discussion and review. As influenza viruses and vaccines change each year, it is virtually impossible to conduct randomised placebo controlled trials³⁻¹². Additionally, older people and others with poorer functioning immune systems do not respond as well to vaccines, therefore the effectiveness of a vaccine depends on the age and physical condition of the individual as well. It is important to remember that the elderly and chronically ill are at greater risk of serious complications from influenza disease, so it is important to protect them by immunising them and those around them.

The efficacy (i.e., prevention of illness among vaccinated persons in controlled trials) and effectiveness (i.e., prevention of illness in vaccinated populations) of influenza vaccines depend primarily on the age and immune status of the recipient. Results vary depending on the outcome being measured and the match between circulating viruses and the vaccine. Randomised controlled trials using control groups

that are not vaccinated with the influenza vaccine as a comparison, that measure outcomes including laboratory-confirmed influenza virus infections are the most persuasive evidence of vaccine efficacy.

The following table compares major studies that assess influenza immunisation effectiveness by a range of different clinical outcomes.

Influenza vaccines are efficacious in children however there is little evidence available at the moment for children under 2 years. In healthy adults, influenza vaccines are effective in reducing cases of influenza when the vaccine and circulating virus strains are well matched. In long-term care facilities, influenza vaccination is effective against complications. Evidence suggests influenza vaccination in the community dwelling elderly is modest.

Study population	Efficacy or effectiveness (range or 95% CI)	Outcome measured
Infants under 6 months whose mothers received influenza vaccine ¹	63% (CI 5% - 85%)	Influenza
Infants under 2 years of age ¹	29% (CI 7% - 46%)	Influenza
Healthy Children under 16 years ²	59% (CI 41% - 71%)	Confirmed influenza
	36% (CI 24% - 46%)	Influenza like-illness
Healthy Adults ³	30% (CI 17% - 41%)	Influenza-like illness
	80% (CI 56% - 91%)	Influenza
	Modest	Time off work
	Insufficient evidence	Hospital admissions or complications
*Elderly in the community ⁴	Not significant	Influenza
	Not significant	Pneumonia
	26% (CI 12% - 38%)	Hospitalisation for influenza or pneumonia
	42% (CI 24% - 55%)	All-cause mortality
*Elderly in rest homes with good vaccine match and high viral circulation ⁴	23% (CI 6% - 36%)	Influenza-like illness
	Not significant	Influenza
	42% (CI 17% - 59%)	Pneumonia
	45% (CI 16% - 64%)	Hospital admission
	42% (CI 17% - 59%)	Death from influenza or pneumonia

Figure 1. Influenza vaccine effectiveness and efficacy by age and status

1. Zaman K, Roy E, Arifeen SE, et al. Effectiveness of maternal influenza immunization in mothers and infants. N Eng J Med., 2008;359(15):1555-1564. 2. Jefferson T, Rivetti A, Harnden A, Di Pietrantonj C, Demicheli V. Vaccines for preventing influenza in healthy children.[update of

Cochrane Database Syst Rev. 2006;(1):CD004879; PMID: 16437500]. Cochrane Database of Systematic Reviews. 2008(2):CD004879., 3. Demicheli V, Pietranonj C, Jefferson T, Rivetti A, Rivetti D. Vaccines for preventing influenza in healthy adults.[update of Cochrane Database Syst Rev. 2004;(3). Cochrane Database of Systematic Reviews. 2007(2).,4. Rivetti D, Jefferson T, Thomas R, et al. Vaccines for preventing influenza in the elderly. Cochrane Database of Systematic Reviews. 2006;3:CD004876.

Summary

- Celvapan™ is a vaccine against non seasonal H1N1 ('swine flu') influenza, a disease which is mild in most cases but can be very severe and even deadly in others, particularly people with pre-existing medical problems such as heart and lung conditions, pregnant women, morbidly obese people and Maori and Pacific children.
- The manufacturing process used to produce Celvapan™ is not new and has been used for many years to produce polio vaccine.

References

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7. Kempe A, Daley MF, Stokley S, Crane LA, Beaty BL, Barrow J, et al. Impact of a Severe Influenza Vaccine Shortage on Primary Care Practice. *American Journal of Preventive Medicine* 2007;33(6):486-491.
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9. Walter EB, Neuzil KM, Zhu Y, Fairchok MP, Gagliano ME, Monto AS, et al. Influenza Vaccine Immunogenicity in 6- to 23-Month-Old Children: Are Identical Antigens Necessary for Priming? *Pediatrics* 2006;118(3):e570-578.
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11. Rivetti D, Jefferson T, Thomas R, Rudin M, Rivetti A, Di Pietranonj C, et al. Vaccines for preventing influenza in the elderly. *Cochrane Database of Systematic Reviews* 2006;3:CD004876.
12. Armstrong BG, Mangtani P, Fletcher A, Kovats S, McMichael A, Pattenden S, et al. Effect of influenza vaccination on excess deaths occurring during periods of high circulation of influenza: cohort study in elderly people. *Bmj* 2004;329(7467):18.

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