

Guide to the Influenza Vaccine Choices in the USA for the 2014-2015 Influenza Season

Introduction

Until the 2002-2003 influenza (flu) season, the only flu vaccines available in the USA were Thimerosal-preserved trivalent inactivated-influenza vaccines, where the influenza viruses were grown in embryonated eggs¹. After a suitable growth period (typically about 48 hours at 37 °C), the viruses are harvested by removing the allantoic fluid – about 10 ml per egg, inactivated with formaldehyde (or another aldehyde) and processed to make the final inactivated viral concentrates which are blended with other ingredients to form the final vaccine formulation. In general, these influenza vaccines contained two (2) inactivated A-strain influenza viruses and one (1) inactivated B-strain influenza virus and were preserved with a 0.01% level of Thimerosal.

Moreover, until 1997, there was no population recommendation that pregnant women be given a flu shot at any stage in pregnancy; until 2002, there was no general recommendation to vaccinate any age-group of children with a flu vaccine each year; and the “universal” influenza-vaccination programs were aimed at those 65 years of age and older.

The Influenza Vaccines Available for the 2014-2015 Flu Season

As we get ready for the 2014-2015 influenza season, as of 1 August 2014, the seasonal “flu vaccine” landscape for egg-culture-derived influenza vaccines has changed to include:

- a.** Four (4) [possibly five (5)] injected trivalent inactivated-influenza vaccines that are preserved with Thimerosal (the multi-dose formulations of CSL Limited’s Afluria[®], Sanofi Pasteur’s Fluzone[®], Novartis’ Fluvirin[®], IDC Biomedical’s FluLaval[®] Trivalent, and [Novartis’ Agriflu^{®4}]);
- b.** One (1) injected trivalent inactivated-influenza vaccine derived from egg culture that contains a reduced level of Thimerosal (the single-dose formulation, “Fluvirin Preservative Free”);
- c.** Six (6) [possibly seven (7)] injected trivalent inactivated-influenza vaccines that contain no Thimerosal (the single-dose formulations of Afluria, Fluzone and IDC’s FluLaval Trivalent, Fluzone High Dose⁴ for those 65 and older, Fluzone Intradermal⁴ for those 18 through 64, and, for those over 18, GlaxoSmithKline’s Fluarix[®], and [possibly Novartis’ Agriflu^{®4}]);
- d.** Three (3) quadrivalent inactivated-influenza vaccines containing 2 “A” strains and 2 “B” strains of the influenza viruses with no Thimerosal (the single-dose “No Preservative” formulations of Fluzone Quadrivalent, Fluarix Quadrivalent and FluLaval Quadrivalent);
- e.** Two (2) quadrivalent Thimerosal-preserved inactivated-influenza vaccines containing 2 “A” strains and 2 “B” strains of the influenza viruses (the Fluzone and FluLaval quadrivalents); and
- f.** One (1) quadrivalent bioengineered (cold-adapted) live-virus vaccine (MedImmune’s FluMist[®] Quadrivalent No Preservative) that is inoculated into the nose rather than injected.

In addition, there are two no-Thimerosal injected trivalent inactivated-influenza vaccines that are not produced using egg culture that have been approved by the US Food and drug Administration (FDA): **a)** Protein Sciences Corporation’s Flublok^{®4}, designed to be produced by an insect cell culture system, and **b)** Novartis’ Flucelvax[®], designed to be produced in a Madin Darby Canine Kidney (MDCK) cell line.

Thus, there are 19 [to possibly 21] influenza vaccine formulations that should be available in the USA for the 2014-2015 flu season, although the quantity of doses for some of them may be limited.

¹ <http://www.virology.ws/2009/12/10/influenza-virus-growth-in-eggs/>

Choice Complicating Factors

Moreover, the diversity of listed age ranges associated with each of these influenza-vaccine formulations further complicates this picture as does the general recommendation that all should get at least one influenza vaccine dose each year even though the available influenza vaccines are not truly effective in preventing those inoculated with any influenza vaccine from subsequently contracting influenza or an influenza-like disease during the “flu season” and there is some evidence that getting the inactivated influenza vaccine increases the risk of contracting a non-influenza viral respiratory infection by more than three (3) times².

If you want to avoid a live-virus vaccine, which can infect you or anyone inoculated with it and which the inoculees can spread to others, then you should avoid FluMist Quadrivalent⁵.

If you are leery of the newer vaccines produced using other than egg-culture, then you should avoid Flublok⁴ and Flucelvax.

If you further want to avoid influenza vaccines that contain Thimerosal, you should avoid the multi-dose formulations of Afluria³, Fluzone, Fluzone Quadrivalent, and Fluvirin; the multi-dose formulations of FluLaval Trivalent and FluLaval Quadrivalent; and the single-dose formulation, “Fluvirin Preservative Free”.

If the individual to be inoculated is under two years of age, the Fluzone and Fluzone Quadrivalent, and the Fluzone Quadrivalent Pediatric-dose No-Preservative inactivated-influenza vaccine formulations are the only vaccines approved for children in that age group. However, the available evidence indicates that inactivated-influenza vaccines are not effective in preventing those under two-years old from getting influenza.

If you are 65 years of age or older, then you should avoid Flublok⁴, Fluzone Intradermal⁴, and FluMist Quadrivalent⁵.

If you are over 49 years of age, you should avoid Flublok⁴ and FluMist Quadrivalent⁵.

If the person to be vaccinated is under 18 years of age, then the vaccines that should not be administered are Fluzone High Dose⁴, Fluzone Intradermal⁴, Flublok⁴, Fucelvax, and, *if available*, Agriflu⁴.

For children under two (2) years of age, the choices are the Thimerosal-preserved Fluzone and Fluzone Quadrivalent vaccines, and the no-Thimerosal “Fluzone Quadrivalent Pediatric Dose No preservative” vaccine.

For children two (2) years of age and older, the choices are Fluzone, Fluzone Quadrivalent, Fluzone Quadrivalent Pediatric Dose No preservative for children under 3 years of age, and FluMist Quadrivalent⁵.

For children three (3) years of age and older, the choices are Fluzone, Fluzone Quadrivalent, Fluarix Quadrivalent, FluLaval Trivalent, FluLaval Quadrivalent, and FluMist Quadrivalent⁵.

For children four (4) years of age and older, the choices are Fluzone, Fluzone Quadrivalent, Fluvirin, Fluarix Quadrivalent, FluLaval Trivalent, FluLaval Quadrivalent, and FluMist Quadrivalent⁵.

For children nine (9) years of age and older, the choices are Afluria², Fluzone, Fluzone Quadrivalent, Fluvirin, Fluarix Quadrivalent, FluLaval Trivalent, FluLaval Quadrivalent, and FluMist Quadrivalent⁵.

One “Example” Decision Tree for Selecting an Influenza Vaccine Formulation

In deciding which influenza vaccine, if any, is right for you, then, *absent any contradiction for a particular vaccine*, you may want to consider the following suggested vaccine decision tree (see **Table 1**, “**Suggested Influenza Vaccination Decision Tree for Those Who Want an Influenza Vaccination**” on page “**T-1**”), which follows the text of this article.

² http://dr-king.com/docs/20140122_InfluenzaVaccines_VaccinationPrograms_Unsafe_NotEffective_IllnessCausing_Final_b.pdf.

³ Though at one time the FDA approved the Afluria influenza formulations for those 6 months of age and older, after “seizures” reports in young children, the FDA revised the age range to 5 years of age and older. For the 2014-2015 flu season, the CDC recommendation is for those 9 years of age and older. However, a few instances of “seizures” following Afluria inoculation have been reported in adults.

⁴ Not on CDC’s 1 August 2014 contracts’ price list — <http://www.cdc.gov/vaccines/programs/vfc/awardees/vaccine-management/price-list/index.html>.

⁵ This vaccine should also be avoided if the child has respiratory problems.

Some Additional Information about the Various Influenza Vaccine Formulations

For those seeking some pertinent information on the influenza vaccine formulations approved for the 2014-2015 “flu season”, which technically runs from July of 2014 through June of 2015 but, in terms of significant numbers of “flu-related” illnesses typically runs from late September of one year through March of the next year, a three-part **Table 2, “Mercury, Aluminum and Formaldehyde in Influenza Vaccines, Where Some Contain Thimerosal”**, which follows **Table 1** on pages “**T-2**” through “**T-4**”, provides some additional general information about each influenza vaccine formulation approved by the US Food and Drug Administration (FDA) for the 2014-2015 flu season.

Some Pricing Information from the CDC for Most of the Influenza Vaccines

For those seeking pricing information on the influenza vaccine formulations approved for the 2014-2015 “flu season”, it is provided in two CDC-derived tables, “**Pediatric Influenza Vaccine Price List as of 1 August 2014**” and “**Adult Influenza Vaccine Price List as of 1 August 2014**”, which follow **Table 2** on pages “**T-5**” and “**T-6**”.

A Dietary Alternative that May Be Protective

Finally, for those seeking alternatives to the influenza vaccines, which have proven to be less than effective in protecting the inoculees from contracting influenza or an influenza-like illness, to protect them from contracting influenza or an influenza-related illness, a dietary alternative that seems to be protective is based on keeping one’s 25-hydroxy-vitamin-D blood level well above the 55 ng/mL (138 nmole/L) level but below 110 ng/mL (275 nm/L) [by, for example, taking appropriate doses of vitamin D-3 along with vitamin K-2 or probiotics that produce vitamin K-2 daily] while: **a)** maintaining adequate daily intakes of vitamin C (on the order of 2 to 10 grams of vitamin C per day depending upon the person’s age, weight and health status), **b)** eating an otherwise healthy diet that avoids or minimizes the intake of GMO-containing products and processed sugars (sucrose and high-fructose corn syrup), and **c)** taking appropriate amounts of other dietary supplements including fermented foods, prebiotics and probiotics to maintain and support your body’s health.

Concluding Remarks

Hopefully, some of the information provided may be of help to the reader in deciding which flu vaccine, if any, he or she should consider this year for himself or herself or his or her child, children, and/or ward or wards.

In addition, for those who decide that they do not want an influenza vaccine for the 2014-2015 flu season for whatever reason, this article suggests a general dietary approach that, based on a few limited-size independent studies, may be protective against influenza and influenza-related illnesses occurring in the flu season.

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9 August 2014

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*It is not medical or legal advice and it does not require any specific action or actions. *
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*information posted other than it is my best understanding of the facts on the date that this *
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*All should verify the accuracy of the information provided for themselves before acting on it. *

Table 1. Suggested Influenza Vaccination Decision Tree for Those Who Want an Influenza Vaccination

1. Is a live-virus vaccine what you want? If “yes”, go to step “23.”; else go to step “2.”
2. Is a vaccine grown in a dog kidney cell line or in insect cells acceptable to you? If “yes”, go to step “3”; else go to step “25”.
3. Are you 18 years of age or older? If “yes”, then go to step “4”, else go to step “12”.
4. Are you truly allergic to eggs? If “yes”, then go to step “5”, else go to step “6”.
5. Are you under 49 years of age? If “yes”, then choose Flublok⁴; else choose Flucelvax.
6. Is the person to be vaccinated 65 or more years of age? If “yes”, go to step “7”; else go to step “9”.
7. Is a vaccine containing Thimerosal acceptable? If “yes”, go to step “8”, else choose an available single-dose “No Preservative” formulation of Afluria², [Agriflu⁴,] Fluzone, Fluzone High Dose⁴, Fluzone Quadrivalent, Fluarix Quadrivalent, FluLaval Trivalent, FluLaval Quadrivalent, or Flucelvax.
8. Choose from any available formulation of Afluria², [Agriflu⁴,] Fluzone, Fluzone High Dose⁴, Fluzone Quadrivalent, Fluvirin, Fluarix Quadrivalent, FluLaval Trivalent, FluLaval Quadrivalent, or Flucelvax.
9. Is the person to be vaccinated 18 to 64 years of age? If “yes”, go to step “10”, else go to step “12”.
10. Is a vaccine containing Thimerosal acceptable? If “yes”, go to step “11”, else choose a single-dose “No preservative” formulation of Afluria², [Agriflu⁴,] Fluzone, Fluzone Intradermal⁴, Fluzone Quadrivalent, Fluarix Quadrivalent, FluLaval Trivalent, FluLaval Quadrivalent, or Flucelvax.
11. Choose from any formulation of Afluria², [Agriflu⁴,] Fluzone, Fluzone Intradermal⁴, Fluzone Quadrivalent, Fluvirin, Fluarix Quadrivalent, FluLaval Trivalent, FluLaval Quadrivalent, or Flucelvax.
12. Is the person to be vaccinated 18 through 49 years of age? If “yes”, go to step “13”, else go to step “15”.
13. Is a vaccine that contains Thimerosal acceptable? If “yes”, go to step “14”, else choose a single-dose “No Preservative” formulation of Afluria², [Agriflu⁴,] Fluzone, Fluzone Intradermal⁴, Fluzone Quadrivalent, FluLaval Trivalent, FluLaval Quadrivalent, Fluarix Quadrivalent, Flublok⁴ or Flucelvax.
14. Choose from any formulation of Afluria, [Agriflu⁴,] Fluzone, Fluzone Intradermal⁴, Fluzone Quadrivalent, Fluvirin, Fluarix Quadrivalent, FluLaval Trivalent, FluLaval Quadrivalent, Flublok⁴ and Flucelvax.
15. Is a vaccine that contains Thimerosal acceptable to the person under 18 years of age? If “yes”, go to step “19.”; else go to “16.”
16. Is your child 9 years of age or older? If “yes”, then choose an available single-dose “No preservative” formulation of Afluria², Fluzone, Fluzone Quadrivalent, FluLaval Trivalent, FluLaval Quadrivalent, or Fluarix Quadrivalent; else got to “17.”
17. Is your child 3 years of age or older? If “yes”, then choose the appropriate single-dose “No preservative” formulation of Fluzone, Fluzone Quadrivalent, FluLaval Trivalent or Quadrivalent, or Fluarix Quadrivalent; else got to “18.”
18. For children less than 3 years of age, choose the Fluzone Quadrivalent Pediatric-Dose No-preservative vaccine.
19. Is your child 9 years of age or older? If “yes”, then choose any formulation (single-dose or multi-dose) of Afluria², Fluzone, Fluzone Quadrivalent, Fluvirin, FluLaval Trivalent or Quadrivalent, or Fluarix Quadrivalent; else got to “20.”
20. Is your child 4 years of age or older? If “yes”, then choose any formulation of Fluzone, Fluzone Quadrivalent, Fluvirin, FluLaval Trivalent or Quadrivalent, or Fluarix Quadrivalent; else got to “21.”
21. Is your child 3 years of age or older? If “yes”, then choose any formulation of Fluzone, Fluzone Quadrivalent, FluLaval Trivalent, FluLaval Trivalent or Quadrivalent, or Fluarix Quadrivalent; else got to “22.”
22. For children less than 3 years of age, choose a 0.25-mL dose of the Fluzone or Fluzone Quadrivalent vaccines.
23. Is the person to be inoculated 2 through 49 years of age? If yes, go to “24”; else go to step “2”.
24. Seek out a FluMist Quadrivalent vaccine⁵.
25. Are you or the individual to be inoculated seriously allergic to egg protein? If “yes”, go to “step “26.”, else go to step “27”.
26. If the individual is 18 years of age or older, then reconsider the Flublok⁴ inactivated-influenza vaccine (for those 18 to 49 years of age) or the Flucelvax inactivated-influenza vaccine (for those 18 years of age and older), else go to step “28.”
27. If you are an adult (18 years of age or older), consider omitting Flublok⁴ and Flucelvax from your candidate list and returning to step “6.”, else go to step “28.”.
28. Consult with your healthcare provider as to how to proceed.

Table 2. Mercury, Aluminum and Formaldehyde in Influenza Vaccines, Where Some Contain Thimerosal, Part A

Vaccine's Registered Trade Name (if any)	Vaccine's Manufacturer	Nominal Added Thimerosal Level	Mercury Level [Aluminum Level] {Formaldehyde Level} <Other components>	Recommended for [Not recommended for]
Afluria No Preservative* (egg based)	CSL Limited	0 (single dose)	0 µg /0.5-mL dose { 0 } { 0 } See package insert for other components.	Listed by FDA for 5 years of age and older – trivalent; 2 “A” & 1 “B” strains; but CDC only recommends for those 9 years of age and older [See package insert.]
Afluria * (egg based)	CSL Limited	0.01% (multidose)	24.5 µg / 0.5 mL dose) { 0 } { 0 } See package insert for other components.	Listed by FDA for 5 years of age and older – trivalent; 2 “A” & 1 “B” strains; but CDC only recommends for those 9 years of age and older. [See package insert.]
[Agrimflu (egg based) as of 7 August 2014, no FDA approval for 2014-2015 form.]	Novartis Vaccines and Diagnostics Ltd. (produced in Italy)	0 (single dose)	0 { 0 } { ≤ 10 µg /0.5-mL dose } See package insert for other components.	18 years of age and older – trivalent, 2 “A” & 1 “B” strains [See package insert.]
		0.01% (multidose) [formulation approved in Oct 2013 but 2013-2014 formula not approved as of 7 August 2014]	~ 25 µg/0.5-mL dose [a Thimerosal-preserved multi dose formula whose composition has not been disclosed in a package insert on the www.fda.gov web site as of 7 August 2014]	18 years of age and older – trivalent, 2 “A” & 1 “B” strains? [See package insert.]
Fluzone ⁵ (egg based)	Sanofi Pasteur, Inc. Only supplier for 6 months up to 2 nd birthday	0.01% (multidose; 5-mL vial)	25 µg/0.5-mL dose { 0 } { < 100 µg/0.5 mL dose } <Octylphenol Ethoxylate [¶] 150 µg/0.5 mL dose> See package insert for other components.	6 months of age and older – trivalent; 2 “A” & 1 “B” strains [See package insert.]
Fluzone Quadrivalent ⁵ (egg based)	Sanofi Pasteur, Inc. Only supplier for 6 months up to 2 nd birthday	0.01% (multidose; 5-mL vial)	25 µg/0.5-mL dose { 0 } { < 100 µg/0.5-mL dose } <Octylphenol Ethoxylate [¶] 250 µg/0.5 mL dose> See package insert for other components.	6 months of age and older – trivalent; 2 “A” & 1 “B” strains [See package insert.]
Fluzone* No-Preservative (egg based)	Sanofi Pasteur, Inc. Only supplier for 6 months up to 2 nd birthday	0 (single-dose; 0.5 mL syringes [clear plunger] & 0.5-mL vial)	0 { 0 } { < 100 µg/0.5-mL dose } <Octylphenol Ethoxylate [¶] 150 µg/0.5-mL dose> See package insert for other components.	6 months of age and older – trivalent; 2 “A” & 1 “B” strains [See package insert.]
Fluzone Quadrivalent No Preservative (egg based) & Pediatric dose No Preservative	Sanofi Pasteur, Inc. [Only supplier for 6 months up to 2 nd birthday]	0 (single dose; 0.5-mL syringe [yellow plunger] & 0.5-mL vial) 0 (single-dose; 0.25-mL syringe [purple plunger])	0 { 0 } { < 100 µg/0.5-mL dose } <Octylphenol Ethoxylate [¶] 250 µg/0.5-mL dose> See package insert for other components.	6 months of age and older – quadrivalent; 2 “A” & 2 “B” strains [Only inactivated-influenza vaccine for 6 months up to 3 rd birthday] [See package insert.]
Fluzone High Dose – only for those 65 & older	Sanofi Pasteur, Inc.	0 (single-dose; [gray plunger])	0 { 0 } { < 100 µg/0.5-mL dose } <Octylphenol Ethoxylate [¶] 250 µg/0.5-mL dose> See package insert for other components.	65 years of age and older – trivalent with 4x influenza antigens; 2 “A” strains & 1 “B” strain [See package insert.]

* For influenza vaccines produced in both single-dose (‘preservative free’) & multi-dose formulas [Afluria, Fluzone, Fluzone Quadrivalent, FluLaval, FluLaval Quadrivalent & Fluvirin], these vaccines should be avoided unless there is definite proof that the dose being offered is a syringe filled by the vaccine’s manufacturer!

[¶] Octylphenol Ethoxylate is a non-specific name for a family of surfactants – e.g., DOW’s ‘TRITON X-’ family.

[§] Nonylphenol Ethoxylate is a non-specific name for a family of surfactants – e.g., DOW’s ‘TERGITOL™ NP.’ family.

Table 2 — Mercury, Aluminum and Formaldehyde in Influenza Vaccines, Where Some Contain Thimerosal, Part B

Vaccine's Registered Trade Name (if any)	Vaccine's Manufacturer	Nominal Added Thimerosal Level	Mercury Level [Aluminum Level] {Formaldehyde Level} <Other components>	Recommended for [Not recommended for]
Fluzone Intradermal – only for adults through 64 years of age	Sanofi Pasteur, Inc.	0 (single-dose; 0.1-mL 'syringe')	0 [0] { ≤ 20 µg /0.1-mL dose } <Octylphenol Ethoxylate [¶] 50 µg/0.1-mL dose> <i>See package insert for other components.</i>	18 through 64 years of age – trivalent 2; “A” & 1 “B” strains [See package insert.]
Fluvirin* (egg based) – only for those 4 years of age & older	Novartis Vaccines and Diagnostics Ltd.	0.01% (multi-dose vial)	25 µg/0.5-ml dose [0] { ≤ 0 µg/0.5-mL dose } <Egg proteins (≤ 1 µg ovalbumin), polymyxin (≤ 3.75 µg), neomycin (≤ 2.5 µg), betapropiolactone (≤ 0.5 µg) per 0.5-mL dose & nonylphenol ethoxylate [§] (≤ 0.015% w/v.> <i>See package insert for other components.</i>	4 years of age and older – trivalent; 2 “A” & 1 “B” strains [See package insert.]
Fluvirin Preservative Free* (egg based) – only for those 4 years of age & older	Novartis Vaccines and Diagnostics Ltd.	< 0.0002 % (single-dose 0.5-mL prefilled syringe)	< 1 µg /0.5-mL dose [0] { ≤ 0µg /0.5-mL dose } <Egg proteins (≤ 1 µg ovalbumin), polymyxin (≤ 3.75 µg), neomycin (≤ 2.5 µg), betapropiolactone (≤ 0.5 µg) per 0.5-mL dose & nonylphenol ethoxylate [§] (≤ 0.015% w/v.> <i>See package insert for other components</i>	4 years of age and older – trivalent; 2 “A” & 1 “B” strains [See package insert.]
Fluarix Quadrivalent Preservative Free (egg based)	GlaxoSmithKline Biologicals	0 (single dose)	0 [0] { < 5µg /0.5 mL dose } < octoxynol-10 (TRITON® X-100) ≤ 115 µg, α-tocopheryl hydrogen succinate ≤ 135 µg, polysorbate 80 (Tween 80) ≤ 550 µg & sodium deoxycholate ≤ 65 mcg per 0.5-mL dose.> <i>See package insert for other components.</i>	3 years of age and older – trivalent and quadrivalent [See package insert.]
FluMist Quadrivalent (egg based; bioengineered live viruses)	MedImmune Vaccines, Inc.	0 (single dose)	0 µg/0.2-mL dose [0] { 0 } <Quadrivalent: Dose contains 188 µg monosodium glutamate [MSG], 2000 µg hydrolyzed porcine gelatin, 2420 µg arginine, 13,680 µg sucrose, as well as residual amounts of ovalbumin (< 0.24 µg), gen-tamicin sulfate (< 0.015 µg) & ethylenediaminetetra-acetic acid (EDTA) (< 0.37 µg) per 0.2-mL dose.> <i>See package insert for other components.</i>	2 years through 49 years of age – quadrivalent; 2 “A” & 2 “B” strains [See package insert.]
FluLaval Trivalent (egg based) Multi-dose and now single-dose	ID Biomedical Corporation of Quebec	0.01% (multidose) 0 (single dose)	25 µg /0.5-ml dose; 0 (single dose) [0] { ≤25 µg /0.5-mL dose } <Residual amounts of ovalbumin (≤0.3 µg & sodium deoxycholate (≤50 µg) per 0.5-mL dose.> <i>See package insert for other components.</i>	3 years and older – trivalent; 2 “A” & 1 “B” strains Note: Lower age limit was 18 years of age for the 2012-13 formulation [See package insert.]

* For influenza vaccines produced in both single-dose ('preservative free') & multi-dose formulas [Afluria, Fluzone, Fluzone Quadrivalent, FluLaval, FluLaval Quadrivalent & Fluvirin], these vaccines should be avoided unless there is definite proof that the dose being offered is a syringe filled by the vaccine's manufacturer!

[¶] Octylphenol Ethoxylate is a non-specific name for a family of surfactants – e.g., DOW's 'TRITON X-' family.

[§] Nonylphenol Ethoxylate is a non-specific name for a family of surfactants – e.g., DOW's 'TERGITOL™ NP-' family.

Table 2 — Mercury, Aluminum and Formaldehyde in Influenza Vaccines, Where Some Contain Thimerosal, Part C

Vaccine Trade Name (if any)	Vaccine Manufacturer	Nominal Added Thimerosal Level	Mercury Level [Aluminum Level] {Formaldehyde Level}	Recommended for [Not recommended for]
FluLaval Quadrivalent (egg based) Multi-dose and now single-dose	ID Biomedical Corporation of Quebec	0.01% (multidose) 0 (single dose)	25 µg /0.5 ml dose; 0 (single dose) [0] { ≤25 µg /0.5 mL dose } < α-tocopheryl hydrogen succinate [a vitamin E] (≤320 µg), polysorbate 80 [a surfactant] (≤887 µg), and residual amounts of ovalbumin (≤0.3 µg) and sodium deoxycholate (≤50 µg).> See package insert for other components.	3 years and older – quadrivalent; 2 “A” & 2 “B” strains [See package insert.]
Flublok Preservative Free (engineered to be produced by an insect cell line)	Protein Sciences Corporation	0 (single dose)	0 [0] { 0 } <Residual amounts of baculovirus & host cell proteins (≤ 28.5 mcg), baculovirus & cellular DNA (≤ 10 ng), & Triton X-100 (≤ 100 mcg).> See package insert for other components.	18 through 49 years of age – trivalent; 2 “A” & 1 “B” strains [See package insert.]
Flucelvax Preservative Free Antibiotic free (grown in Madin Darby Canine Kidney (MDCK) cell line)	Novartis Vaccines and Diagnostics, Inc.	0 (single dose)	0 [0] { 0 } <Residual MDCK cell protein (≤ 8.4 µg), protein other than HA (≤ 120 µg), MDCK cell DNA (≤ 10 ng), polysorbate 80 (≤ 1125 µg), cetyltrimethyl-ammonium bromide (≤ 13.5 µg), and β-propiolactone (≤ 0.5 µg).> See package insert for other components.	18 years & older – trivalent; – trivalent; 2 “A” & 1 “B” strains [See package insert.]
<p>* For influenza vaccines produced in both single-dose (‘preservative free’) & multi-dose formulas [Afluria, Fluzone, Fluzone Quadrivalent, FluLaval, FluLaval Quadrivalent & Fluvirin], these vaccines should be avoided unless there is definite proof that the dose being offered is a syringe filled by the vaccine’s manufacturer!</p> <p>¶ Octylphenol Ethoxylate is a non-specific name for a family of surfactants – e.g., DOW’s ‘TRITON X-’ family.</p> <p>§ Nonylphenol Ethoxylate is a non-specific name for a family of surfactants – e.g., DOW’s ‘TERGITOL™ NP.’ family.</p>				

Pediatric Influenza Vaccine Price List as of 1 August 2014

Note: The table below reflects new contracts for the 2014-2015 Pediatric Flu.

Vaccine	Brandname/ Tradename	NDC	Packaging	CDC Cost/ Dose	Private Sector Cost/ Dose	Contract End Date	Manufacturer [7]	Contract Number
Influenza [5, 6] (Age 6 months and older)	Fluzone®	49281- 0394-15	10 dose vial	\$7.75	\$10.69	2/28/2015	Sanofi Pasteur	200-2014-57656
	Fluzone® Quadrivalent	49281- 0621-15	10 dose vial	\$13.15	\$16.15			
Influenza [5] (Age 6-35 months)	Fluzone® Quadrivalent Pediatric dose No Preservative	49281- 0514-25	10 pack - 1 dose syringe	\$17.439	\$21.09	2/28/2015	Sanofi Pasteur	200-2014-57656
Influenza [5] (Age 36 months and older)	Fluzone® No-Preservative	49281- 0014-50	10 pack - 1 dose syringe	\$9.60	\$12.49	2/28/2015	Sanofi Pasteur	200-2014-57656
	Fluzone® Quadrivalent No-Preservative	49281- 0414-50	10 pack - 1 dose syringe	\$14.25	\$17.15			
		49281- 0414-10	10 pack - 1 dose vial	\$15.10	\$17.97			
Influenza [5] (Age 36 months and older)	Fluarix® Quadrivalent Preservative Free	58160- 0901-52	10 pack- 1 dose TipLok syringe	\$13.65	\$15.90	2/28/2015	GlaxoSmithKline	200-2014-57658
Influenza [5, 6] (Age 36 months and older)	FluLaval Quadrivalent	19515- 0891-11	10 dose vial	\$12.80	\$14.90	2/28/2015	GlaxoSmithKline	200-2014-57658
	FluLaval Trivalent	19515- 0893-07	10 dose vial	\$6.75	\$7.65			
Influenza [5, 6] (Age 4 years and older)	Fluvirin®	66521- 0117-10	10 dose vial	\$8.22	\$13.63	2/28/2015	Novartis	200-2014-57659
Influenza [5] (Age 4 years and older)	Fluvirin® Preservative Free	66521- 0117-02	10 pack -1 dose syringe	\$9.25	\$14.81	2/28/2015	Novartis	200-2014-57659
Influenza [5] Live, Intranasal (Age 2-49 years)	FluMist® Quadrivalent No Preservative	66019- 0301-10	10 pack- 1 dose sprayer (Intranasal)	\$18.09	\$22.70	2/28/2015	MedImmune	200-2014-57657
Influenza [5] (Age 9 years and older)	Afluria® No Preservative	33332- 0014-01	10 pack-1 dose syringe	\$7.75	\$11.30	2/28/2015	CSL	200-2014-57660
Influenza [5, 6] (Age 9 years and older)	Afluria®	33332- 0114-10	10 dose vial	\$7.00	\$10.55	2/28/2015	CSL	200-2014-57660

Adult Influenza Vaccine Price List as of 1 August 2014

Note: The table below reflects new contracts for the 2014-2015 Adult Flu.

Vaccine	Brandname/ Tradename [7]	NDC	Packaging	CDC Cost/ Dose	Private Sector Cost/ Dose	Contract End Date	Manufacturer	Contract Number
Influenza [5, 6] (Age 6 months and older)	Fluzone®	49281- 0394-15	10 dose vial	\$7.750	\$10.69	2/28/2015	Sanofi Pasteur	200-2014-57652
Influenza [5, 6] (Age 6 months and older)	Fluzone® Quadrivalent	49281- 0621-15	10 dose vial	\$12.22	\$16.15	2/28/2015	Sanofi Pasteur	200-2014-57652
Influenza [5] (Age 36 months and older)	Fluzone® No Preservative	49281- 0014-50	10 pack - 1 dose syringe	\$8.750	\$12.49	2/28/2015	Sanofi Pasteur	200-2014-57652
Influenza [5, 6] (Age 36 months and older)	Fluzone® Quadrivalent No Preservative	49281- 0414-10	10 pack - 1 dose vial	\$13.575	\$17.97	2/28/2015	Sanofi Pasteur	200-2014-57652
		49281- 0414-50	10 pack - 1 dose syringe	\$12.965	\$17.15			
Influenza [5] (Age 18 years and older)	Flucelvax® Preservative Free Antibiotic free	62577- 0613-01	10 pack - 1 dose syringe	\$9.76	\$19.13	2/28/2015	Novartis	200-2014-57655
Influenza [5, 6] (Age 4 years and older)	Fluvirin®	66521- 0117-10	10 dose vial	\$6.93	\$13.63	2/28/2015	Novartis	200-2014-57655
Influenza [5] (Age 4 years and older)	Fluvirin® Preservative Free	66521- 0117-02	10 pack -1 dose syringe	\$7.96	\$14.81	2/28/2015	Novartis	200-2014-57655
Influenza [5] (Age 36 months and older)	Fluarix® Quadrivalent Preservative Free	58160- 0901-52	10 pack- 1 dose TipLok syringe	\$12.03	\$15.90	2/28/2015	GlaxoSmithKline	200-2014-57654
Influenza [5, 6] (Age 36 months and older)	FluLaval Quadrivalent	19515- 0891-11	10 dose vial	\$11.28	\$14.90	2/28/2015	GlaxoSmithKline	200-2014-57654
		19515- 0893-07	10 dose vial	\$5.88	\$7.65			
Influenza [5] (Age 9 years and older)	Afluria® No Preservative	33332- 0014-01	10 pack-1 dose syringe	\$7.29	\$11.30	2/28/2015	CSL	200-2014-57653
Influenza [5, 6] (Age 9 years and older)	Afluria®	33332- 0114-10	10 dose vials-1 pack	\$6.53	\$10.55	2/28/2015	CSL	200-2014-57653

Footnotes

1. Vaccine cost includes \$2.25 dose Federal Excise Tax
2. Vaccine cost includes \$3.00 per dose Federal Excise Tax
3. Vaccine cost includes \$1.50 per dose Federal Excise Tax
4. Vaccine cost includes \$3.75 per dose Federal Excise Tax
5. Vaccine cost includes \$0.75 per dose Federal Excise Tax
6. Vaccines which contain Thimerosal as a preservative
7. Novartis' Agriflu, an inactivated-influenza vaccine for adults 18 and older, was not approved by the FDA for 2014-2015 flu season as of 1 August 2014 and there was NO CDC contract for it at that time.