

Guide to the No-Thimerosal Influenza Vaccine Choices in the USA for the 2013-2014 Flu Season

Introduction

Up until the 2002-2003 influenza (flu) season, the only flu vaccines marketed 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 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 and, until 2002, there was no general recommendation to vaccinate any age-group of children with a flu vaccine each year and the general flu-vaccination programs were aimed at those 65 years of age and older.

The Influenza Vaccines Available for the 2013-2014 Flu Season

As we get ready for the 2013-2014 influenza season, the seasonal “flu vaccine” landscape for egg-culture-derived influenza vaccines has changed to include:

- a. Four (4) injected trivalent inactivated-influenza vaccines that are preserved with Thimerosal (the multi-dose formulations of CSL Limited’s Afluria^{® 2}, Sanofi Pasteur’s Fluzone[®], Novartis’ Fluvirin[®], and IDC Biomedical’s FluLaval[®]);
- b. One (1) injected trivalent inactivated-influenza vaccine derived from egg culture that contains a reduced level of Thimerosal (the single-dose formulation of Fluvirin);
- c. Six (6) injected trivalent inactivated-influenza vaccines that contain no Thimerosal (the single-dose formulations of Afluria, Fluzone, Fluzone High Dose³ for those 65 and older, Fluzone Intradermal for those 18 – 64, Novartis’ Agriflu[®], and GlaxoSmithKline’s Fluarix[®]);
- d. Two (2) quadrivalent inactivated-influenza vaccines containing 2 “A” strains and 2 “B” strains of the influenza viruses with no Thimerosal (the single-dose formulation of Fluzone Quadrivalent² and Fluarix Quadrivalent);
- e) One (1) quadrivalent inactivated-influenza vaccine containing 2 “A” strains and 2 “B” strains of the influenza viruses that is preserved with Thimerosal (the multi-dose FluLaval Quadrivalent²); and
- f) One (1) quadrivalent bioengineered (cold-adapted) live-virus vaccine (MedImmune’s FluMist Quadrivalent) that is inoculated (sprayed) into the nose rather than injected.

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

² 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 2013-2014 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.

³ Not on CDC’s July 24, 2013 contracts’ price list — <http://www.cdc.gov/vaccines/programs/vfc/awardees/vaccine-management/price-list/>

In addition, there are two new 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^{®2}, which is engineered to be produced by an insect cell culture system, and **b)** Novartis' Flucelvax[®], which is designed to be produce using a Madin Darby Canine Kidney (MDCK) cell line.

Thus, there are 17 flu vaccine formulations that should be available in the USA for the 2013-2014 flu season, although the quantity of doses for some of them may be limited.

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".

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

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

If you further want to avoid flu vaccines that contain Thimerosal, you should avoid the multi-dose formulations of Afluria², Fluzone, and Fluvirin; the multi-dose FluLaval and FluLaval Quadrivalent³; and the single-dose formulation of Fluvirin.

If the individual to be inoculated is under two years of age, Fluzone and Fluzone Quadrivalent³ are the only vaccines for children in that age group.

If you are 65 years of age or older, then you should avoid Flublok³, Fluzone Intradermal, and FluMist.

If you are over 49 years of age, you should avoid Flublok³ and FluMist.

If the person to be vaccinated is under 18 years of age, then the vaccines that should not be administered are Agriflu, Fluzone High Dose³, Fluzone Intradermal, Flublok³ and Fucelvax.

For children under two (2) years of age, the choices are Fluzone and Fluzone Quadrivalent³.

For children two (2) years old and older, the choices are Fluzone, Fluzone Quadrivalent³, and FluMist.

For children three (3) years old and older, the choices are Fluzone, Fluzone Quadrivalent³, Fluarix, Fluarix Quadrivalent, FluLaval, FluLaval Quadrivalent³, and FluMist Quadrivalent.

For children four (4) years of age and older, the choices are Fluzone, Fluzone Quadrivalent³, Fluvirin, Fluarix, Fluarix Quadrivalent, FluLaval, FluLaval Quadrivalent³, and FluMist Quadrivalent.

For children nine (9) years of age and older, the choices are Afluria², Fluzone, Fluzone Quadrivalent³, Fluvirin, Fluarix, Fluarix Quadrivalent, FluLaval, FluLaval Quadrivalent³, and FluMist Quadrivalent.

One "Example" Decision Tree for Selecting a No-Thimerosal Influenza Vaccine

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 a No-Thimerosal Vaccine"** on page "T-1"), which follows the text of this article.

Some Additional Information about the Various Influenza Vaccine Formulations

For those seeking some pertinent information on the influenza vaccine formulations approved for the 2013-2014 “flu season”, which technically runs from July of 2013 through June of 2014 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 3-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 2013-2014 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 2013-2014 “flu season”, it is provided in two CDC-derived tables, “**Pediatric Influenza Vaccine Price List as of 24 July 2013**” and “**Adult Influenza Vaccine Price List as of July 24, 2013**”, which follow **Table 2** on page “T-5”.

Concluding Remarks

Since Sanofi Pasteur (Fluzone) and CSL Ltd (Afluria), marketed by Merck in the USA, produce both multi-dose Thimerosal-preserved influenza vaccines packaged in vials and single-dose no-Thimerosal influenza vaccines packaged in single-dose syringes, which have the same name, it is important to confirm that the dose of vaccine in a syringe was filled by the manufacturer and is not a dose filled by a doctor, a nurse, another licensed healthcare professional, a pharmacist or pharmacist’s assistant, or an influenza vaccine repackaging firm from a multi-dose vial of the Thimerosal-preserved formulation of either Fluzone or Afluria.

Hopefully, some of the information provided in this document 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.

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6 September 2013

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Table 1. Suggested Influenza Vaccination Decision Tree for Those Who Want a No-Thimerosal Vaccine

1. Is a live-virus vaccine what you want? If “yes”, go to step “15.”; 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 “17”.
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 Flublok³; 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 “8”.
7. Choose from the available single-dose Afluria², Agriflu, Fluzone, Fluzone High Dose³, Fuzone Quadrivalent, Fluarix, Fluarix Quadrivalent³, and Flucelvax.
8. Is the person to be vaccinated 18 to 64 years of age? If “yes”, go to step “9”, else go to step “10”.
9. Choose from the single-dose formulations of Afluria², Agriflu, Fluzone, Fluzone High Dose³, Fluzone Intradermal, Fuzone Quadrivalent³, Fluarix, Fluarix Quadrivalent, and Flucelvax.
10. Is the person to be vaccinated 18 through 49 years of age? If “yes”, go to step “11”, else go to step “12”.
11. Choose from the single-dose formulations of Afluria², Agriflu, Fluzone, Fluzone High Dose³, Fluzone Intradermal, Fuzone Quadrivalent³, Fluarix, Fluarix Quadrivalent, Flublok³ and Flucelvax.
12. Is your child 9 years of age or older? If “yes”, then choose the appropriate single-dose formulation of Afluria², Fluzone, Fluzone Quadrivalent³, Fluarix, or Fluarix Quadrivalent; else got to “13.”
13. Is your child 3 years of age or older? If “yes”, then choose the appropriate single-dose formulation of Fluzone, Fluzone Quadrivalent³, Fluarix, or Fluarix Quadrivalent; else got to “14.”
14. For children less than 3 years of age, choose a 0.25-mL dose of the appropriate single-dose formulation of Fluzone or Fluzone Quadrivalent³.
15. Is the person to be inoculated: a) 2 through 49 years of age and b) not pregnant or possibly pregnant? If yes, go to “16”; else go to step “2”.
16. Seek out the FluMist Quadrivalent vaccine, which is a live-virus influenza vaccine. [**Note:** This live-virus vaccine should not be given to women who are, may be, or may shortly become, pregnant.]
17. Are you or the individual to be inoculated seriously allergic to egg protein? If “yes”, go to “step “18.”, else go to step “19”.
18. If the individual is 18 years of age or older, then reconsider the Flublok³ 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 “20.”
19. If you are an adult (18 years of age or older), consider omitting Flublok³ and Flucelvax from your candidate list and returning to step “6.”, else go to step “20.”.
20. 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* (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.]
Agriflu (egg based)	Novartis Vaccines and Diagnostics Ltd.	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.]
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* (egg based)	Sanofi Pasteur, Inc. [Only supplier for 6 months up to 2 nd birthday.]	0 (single-dose; 0.25-mL & 0.5 mL syringes & 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 (egg based)	Sanofi Pasteur, Inc. [Only supplier for 6 months up to 2 nd birthday.]	0 (single-dose; 0.25-mL yellow-plunger syringe, 0.5 mL purple plunger syringe & 0.5-mL vial)	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 one 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.]
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 } <Octylphenol Ethoxylate [¶] 50 µg/0.1 mL dose> See package insert for other components.	18 through 64 years of age – trivalent 2; “A” & 1 “B” strains [See package insert.]

* For influenza vaccines produced in both single-dose (‘preservative free’) & multi-dose formulas [Afluria, Fluzone (but not Fluzone Quadrivalent), & Fluvirin], these vaccines should be avoided unless there is definite proof that the dose being offered is a single-dose vial or syringe that was 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]
Fluvirin* (egg based)	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) & nonylphenol ethoxylate [§] (≤ 0.015% w/v.> See package insert for other components.	4 years of age and older – 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.	< 0.0002 % (single-dose 0.5-mL prefilled syringe)	< 1 µg /0.5mL dose [0] { ≤ 0µg /0.5 mL dose } <Egg proteins (≤ 1 µg ovalbumin), polymyxin (≤ 3.75 µg), neomycin (≤ 2.5 µg), betapropiolactone (≤ 0.5 µg) & nonylphenol ethoxylate [§] (≤ 0.015% w/v.> See package insert for other components	4 years of age and older – trivalent; 2 “A” & 1 “B” strains [See package insert.]
Fluarix and Fluarix Quadrivalent (egg based)	GlaxoSmithKline Biologicals	0 (single dose)	0 [0] { < 5µg /0.5 mL dose } <Trivalent: octoxynol-10 (TRITON® X-100) ≤ 85 µg, α-tocopheryl hydrogen succinate ≤ 100 µg, and polysorbate 80 (Tween 80) ≤ 415 µg & sodium deoxycholate ≤ 50 mcg. Tetavalent: octoxynol-10 (TRITON® X-100) ≤ 115 µg, α-tocopheryl hydrogen succinate ≤ 135 µg, polysorbate 80 (Tween 80) ≤ 550 µg & sodium deoxycholate ≤ 65 mcg.> See package insert for other components.	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), gentamicin sulfate (< 0.015 µg) & ethylenediaminetetra-acetic acid (EDTA) (< 0.37 µg).> See package insert for other components.	2 years through 49 years of age – quadrivalent; 2 “A” & 2 “B” strains [See package insert.]

* For influenza vaccines produced in both single-dose ('preservative free') & multi-dose formulas [Afluria, Fluzone (but not Fluzone Quadrivalent), & Fluvirin], these vaccines should be avoided unless there is definite proof that the dose being offered is a single-dose vial or syringe that was 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 (egg based)	ID Biomedical Corporation of Quebec	0.01% (multidose only)	25 µg /0.5 ml dose [0] { ≤25 µg /0.5 mL dose } <Residual amounts of ovalbumin (≤0.3 µg & sodium deoxycholate (≤50 µg).> See package insert for other components.	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.]
FluLaval Quadrivalent (egg based) [Note: Only limited quantities will be available for 2013-2014 influenza season.]	ID Biomedical Corporation of Quebec	0.01% (multidose only)	25 µg /0.5 ml 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 (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 (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), cetyltrimethylammonium 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.]

* For influenza vaccines produced in both single-dose ('preservative free') & multi-dose formulas [Afluria, Fluzone (but not Fluzone Quadrivalent), & Fluvirin], these vaccines should be avoided unless there is definite proof that the dose being offered is a single-dose vial or syringe that was 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.

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Pediatric Influenza Vaccine Price List as of 24 July 2013

Note: The table below reflects new contracts for the 2013-2014 Pediatric Flu.

Vaccine	Brandname/ Tradename	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- 0392-15	10 dose vial	\$ 8.749	\$10.69	2/21/2014	Sanofi Pasteur	200-2013-54015
Influenza [5] (Age 6-35 months)	Fluzone® Pediatric dose No Preservative	49281- 0113-25	10 pack - 1 dose syringe	\$12.227	\$15.25	2/21/2014	Sanofi Pasteur	200-2013-54015
Influenza [5] (Age 36 months and older)	Fluzone® No-Preservative	49281- 0013-50	10 pack - 1 dose syringe	\$10.53	\$12.49	2/21/2014	Sanofi Pasteur	200-2013-54015
		49281- 0013-10	10 pack - 1 dose vial	\$10.85	\$13.075			
Influenza [5] (Age 36 months and older)	Fluarix® Preservative Free	58160- 0880-52	10 pack- 1 dose TipLok syringe	\$ 9.25	\$10.98	2/21/2014	GlaxoSmithKline	200-2013-54020
	Fluarix® Quadrivalent Preservative Free	58160- 0900-52	10 pack- 1 dose TipLok syringe	13.65	15.90	2/21/2014	GlaxoSmithKline	200-2013-54020
Influenza [5, 6] (Age 4 years and older)	Fluvirin®	66521- 0116-10	10 dose vial	\$ 8.00	\$13.25	2/21/2014	Novartis	200-2013-54019
	Fluvirin® Preservative Free	66521- 0116-02	10 pack -1 dose syringe	\$ 9.00	\$14.35			
Influenza [5] Live, Intranasal (Age 2- 49 years)	FluMist® No Preservative Quadrivalent	66019- 0300-10	10 pack- 1 dose sprayer (Intranasal)	\$17.30	\$21.70	2/21/2014	MedImmune	200-2013-54017
Influenza [5] (Age 9 years and older)	Afluria® No Preservative	33332- 0013-01	10 pack-1 dose syringe	\$ 9.00	\$11.00	2/21/2014	Merck (CSL product)	200-2013-54016
Influenza [5, 6] (Age 9 years and older)	Afluria®	33332- 0113-10	10 dose vials-1 pack	\$ 8.25	\$10.25	2/21/2014	Merck (CSL product)	200-2013-54016

Adult Influenza Vaccine Price List as of July 24, 2013

Note: The table below reflects new contracts for the 2013-2014 Adult Flu.

Vaccine	Brandname/ Tradename	NDC	Packaging	CDC Cost/ Dose	Private Sector Cost/ Dose	Contract End Date	Manufacturer	Contract Number
Influenza [5, 6] (Age 6 months and older)	Fluzone®	49281-0392- 15	10 dose vial	\$ 8.153	\$10.69	2/21/2014	Sanofi Pasteur	200-2013-54009
Influenza [5] (Age 18 - 64 years)	Fluzone® [Intradermal]	49281-0707- 55	10 pack - 1 dose syringe	\$12.644	\$16.72	2/21/2014	Sanofi Pasteur	200-2013-54009
Influenza [5] (Age 36 months and older)	Fluzone® No Preservative	49281-0013- 50	10 pack - 1 dose syringe	\$ 9.494	\$12.49	2/21/2014	Sanofi Pasteur	200-2013-54009
		49281-0013- 10	10 pack - 1 dose vial	\$ 9.93	\$13.075			
Influenza [5] (Age 18 years and older)	Flucelvax® Preservative Free Antibiotic free	63851-0612- 01	10 pack - 1 dose syringe	\$ 9.50	\$18.25	2/21/2014	Novartis	200-2013-54011
Influenza [5, 6] (Age 4 years and older)	Fluvirin®	66521-0116- 10	10 dose vial	\$ 6.75	\$13.25	2/21/2014	Novartis	200-2013-54011
Influenza [5] (Age 4 years and older)	Fluvirin® Preservative Free	66521-0116- 02	10 pack -1 dose syringe	\$ 7.75	\$14.35	2/21/2014	Novartis	200-2013-54011
Influenza [5, 6] (Age 18 years and older)	FluLaval®	19515-0890- 07	10 dose vial	\$ 5.89	\$ 9.50	2/21/2014	GlaxoSmithKline (IDC Biomedical subsidiary product)	200-2013-54008
Influenza [5] (Age 36 months and older)	Fluarix® Preservative Free	58160-0880- 52	10 pack - 1 dose syringe	\$ 8.08	\$10.98	2/21/2014	GlaxoSmithKline	200-2013-54008
	Fluarix® Quadrivalent Preservative Free	58160-0900- 52	10 pack - 1 dose syringe	\$12.03	15.90	2/21/2014	GlaxoSmithKline	200-2013-54008
Influenza [5] (Age 9 years and older)	Afluria® No Preservative	33332-0013- 01	10 pack-1 dose syringe	\$ 8.13	\$11.00	2/21/2014	Merck (CSL product)	200-2013-54010
Influenza [5, 6] (Age 9 years and older)	Afluria®	33332-0113- 10	10 dose vials-1 pack	\$ 7.819	\$10.25	2/21/2014	Merck (CSL product)	200-2013-54010

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