Influenza is a serious disease that can lead to hospitalization and sometimes even death. According to the Center for Disease Control (CDC), every flu season varies, and an influenza infection can affect people differently. Millions of people get the flu every year, hundreds of thousands of people are hospitalized, and thousands or tens of thousands of people die from flu-related causes every year. Everyone is at risk for influenza, but the highest risk lies within children who are still developing their immune systems. However, with vaccines, this risk is easily preventable and can decrease a person’s chances of acquiring the infection. As such, the CDC recommends that every person six months and older should be vaccinated annually. This is even more important for children because they attend schools where they have maximum exposure to various strains of influenza six to ten hours daily. They can easily spread and contract the disease in their school environment, specifically from children that are not vaccinated.

This leads to the hypothesis that children six months to 17 years should be required to receive influenza vaccinations.

### Parents' decision-making regarding vaccinating their children against influenza

- **Quantitative Study**
- **Sample size**: n = 268
- **Design**: Prospective, randomized, double-blind, placebo controlled, and multicenter
- **Location**: Children 15-17 months, Location: Mountain View, California
- **Date**: 1996-1997

### Health benefits, risk, and cost-effectiveness of influenza vaccination of children

- **Quantitative Study**
- **Sample size**: n = 500
- **Design**: Web-based survey
- **Location**: Parents of children between 2-12 y/o, Location: United States
- **Date**: 2010

### The under recognized burden of influenza in young children

- **Quantitative Study**
- **Sample size**: n = 2797
- **Design**: Children < 5 y/o, located: United States
- **Date**: October 2000 to September 2004

### Parental Perspectives on influenza vaccination of children with chronic medical conditions

- **Mixed Study**
- **Sample size**: n = 183
- **Design**: Parental view, Location: United States
- **Date**: 2003-2006

### Influenza vaccine efficacy in young children attending childcare: A randomized controlled trial

- **Mixed Study**
- **Sample size**: n = 124
- **Design**: Randomized controlled trial
- **Location**: Children 6 to 48 months, Location: Sydney, Australia
- **Date**: 2011

### Pediatric Influenza Vaccine Price List

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Influenza Vaccine at</th>
<th>Brand/Trade Name</th>
<th>Dose</th>
<th>CDC Cost/Dose</th>
<th>Private Sector Cost/Dose</th>
<th>Manufacturer</th>
<th>Contract #</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-23 mo</td>
<td>Fluvalivax Quadrivalent</td>
<td>49281</td>
<td>1 dose vial</td>
<td>$14.52</td>
<td>$16.62</td>
<td>Sanofi Pasteur</td>
<td>200-1707976</td>
</tr>
<tr>
<td>6-23 mo</td>
<td>Flucelvax Quadrivalent</td>
<td>49281</td>
<td>10 pack –1 dose syringe</td>
<td>$15.675</td>
<td>$18.72</td>
<td>Sanofi Pasteur</td>
<td>200-1707976</td>
</tr>
<tr>
<td>6-23 mo</td>
<td>Fluzone High Dose Quadrivalent</td>
<td>49281</td>
<td>10 pack –1 dose syringe</td>
<td>$15.675</td>
<td>$18.72</td>
<td>Sanofi Pasteur</td>
<td>200-1707976</td>
</tr>
<tr>
<td>6-23 mo</td>
<td>Fluzone High Dose Quadrivalent</td>
<td>51102</td>
<td>10 pack –1 dose syringe</td>
<td>$14.43</td>
<td>$16.82</td>
<td>GlaxoSmithKline</td>
<td>200-1707976</td>
</tr>
<tr>
<td>6-23 mo</td>
<td>Fluzone High Dose Quadrivalent</td>
<td>51102</td>
<td>10 pack –1 dose syringe</td>
<td>$14.43</td>
<td>$16.82</td>
<td>GlaxoSmithKline</td>
<td>200-1707976</td>
</tr>
<tr>
<td>6-23 mo</td>
<td>Fluad Quadrivalent</td>
<td>19515</td>
<td>10 pack –1 dose syringe</td>
<td>$13.55</td>
<td>$15.77</td>
<td>GlaxoSmithKline</td>
<td>200-1707976</td>
</tr>
<tr>
<td>4 years</td>
<td>Fluzone High Dose Quadrivalent</td>
<td>72461</td>
<td>10 pack –1 dose syringe</td>
<td>$15.42</td>
<td>$21.22</td>
<td>GlaxoSmithKline</td>
<td>200-1707976</td>
</tr>
</tbody>
</table>

### Findings

**Influenza Vaccination in Pediatric Population**

- Many parents feel more compelled to get their child vaccinated when their health care provider verbally explores the topic with them.
- Of the 119 parents who received the influenza vaccine stated that they would continue to vaccinate their child against influenza. Only 5% said they would not vaccinate their child.
- Many parents and patients get the vaccine when it is convenient and low in cost.
- It is more cost effective when the child is between 6-23 months old, and with high risk patients with chronic illnesses to reduce hospital visits.
- Children have a higher rate of clinical visits and emergency department encounters during the flu season.
- The major drivers of vaccination were prevention of influenza (95.1%), a doctor's recommendation (92.7%), and effectiveness of influenza vaccination (83.3%).

**The average cost of a flu vaccine is $20 per person.**

### Implications for Practice

- Assess parental understanding of implications and reasons for vaccination.
- Educate on the importance of receiving the influenza vaccine annually.
- Inform the parent and patient of the adverse affects of the vaccination.
- Explain to parent and patient other methods of influenza prevention.

### Conclusion/Further Study

**Conclusion**

- There is not enough information gathered to support the hypothesis that children at the ages of 6 months to 17 years be required for vaccinations of influenza.
- Need the perspective of experts for these kinds of research to help better outweigh the different variables.
- While studies show that there are health benefits to support the hypothesis, it does not prove to be cost effective as age increases.
- The cost may outweigh the benefits for those of lower socioeconomic class and those with low risk for contracting the influenza.
- It is however both cost effective and health beneficial for children ages 6 to 23 months where they have weaker immune systems.
- Instead of original hypothesis, Requiring healthcare providers to inform and clear up misconceptions about the influenza vaccine to decrease the prevalence the spread of the flu may be a future study to look at.

**Further Studies**

- Expert viewpoints on influenza vaccinations and thoughts in how to society can better prevent the prevalence of the flu.
- More qualitative studies on viewpoints of influenza vaccination and the reason for their beliefs in taking influenza vaccination.
- Further quantitative and qualitative studies on herd immunity.
- Further qualitative studies on social media and the effects in vaccination rates.