

# Who are Parents of Children Missing One or More Doses of Two or More of the Following Vaccines: DTaP/DTP, Hepatitis B, and Measles Containing Vaccine?

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# Background

- Immunization coverage is high in the U.S.
- Recent concerns about vaccine safety may adversely affect parent's decisions to immunize their children
- In recent years media attention has focused on DTP/DTaP, hepatitis B and MMR vaccines



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# Rationale

- **Several studies have addressed the question of what factors influence whether a child is up to date for immunizations**
- **None have looked at a comprehensive list including attitudes, beliefs, use of alternative medicine, and chronic disease or vaccine side effects in family members**



# Objectives

- To examine differences in parents of children who are missing two or more of these high profile vaccines (DTaP/DTP, hepatitis B, MCV) and those who are up to date for recommended vaccines
- To assess factors associated with persons very concerned about vaccine safety
- To assess factors associated with persons who asked the doctor not to give their child a vaccine for reasons other than illness



# Study Groups

- **Not up to date (NUTD):** Parents whose child was missing doses of two or more of the following vaccines: DTaP/DTP, hepatitis B, and/or MCV
- **Up to date (UTD):** Parents whose child was up-to-date for 4:3:1:3:3:1 (4 DTaP/DTP/DT, 3 polio, 1 MCV, 3 Hib, 3 hepatitis B and 1 varicella)



# Analyses

- Chi squared tests
- Logistic regression
- Attributable risk





# Results

- **Weighted data showed that 3,185,682 were UTD and 289,463 NUTD, missing two or more of the three vaccines**



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# Socio-economic Predictors

Demographics	OR (95% CI)
<b>Income \$</b>	
0-30,000	2.7 (1.4-5.5)*
30,001-50,000	1.6 (0.7-3.4)
50,001-75,000	0.8 (0.3-1.9)
75,000+	referent
<b>Number of Providers</b>	
1 provider	referent
2+ providers	2.7 (1.6-4.6)*
<b>Number of children in the household</b>	
1	referent
2-3	2.1 (1.1-3.8)*
4+	4.5 (1.9-11.0)*



# Risk Factor Predictors

Risk Factors	OR (95% CI)
<p>If you had another baby today, would you want him or her to get all the recommended immunizations?</p> <p>Yes No</p>	<p>referent <b>5.6 (2.0-16.0)</b></p>
<p>Have you asked the doctor or nurse not to give your child an immunization for a reason other than illness?</p> <p>No Yes</p>	<p>referent <b>2.4 (1.0-5.72)</b></p>
<p>How safe do you think immunizations are for children?</p> <p>Very safe (8-10) Somewhat safe/unsafe (0-7)</p>	<p>referent <b>2.3 (1.3-4.0)</b></p>



# Attributable Risk

- **14.8% (42,937)** of the 289,463 in the NUTD group were excess cases due to the seven combinations of the 3 risk factors.
- Each of the risk factors contributed a percentage to the total excess cases (42,937).
  - 38.3% not wanting a new baby to receive all recommended immunizations.
  - 48.1% asking their doctor not to give their child a vaccine for reasons other than illness.
  - 69.0% not thinking immunizations are very safe.



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# Very Concerned About Immunization Safety

- 11 point scale of vaccine safety concern- very concerned (10) 32.1% and all others (0-9) 67.9%
- No difference in NUTD (37.0%) and UTD (31.7%) in the percent of parents who reported being very concerned ( $X^2=1.28$ ;  $p=0.258$ )
- African Americans were more likely to report being very concerned (10) than whites (OR=4.93, CI=2.60-9.35) and college graduates were less likely to be very concerned (OR=0.40, CI=0.21-0.76) than those with a high school education



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# Asked doctor not to give their child a vaccine for reasons other than illness

- More parents in the NUTD (11.3%) than those in the UTD group (4.2%) asked the doctor not to give their child a vaccine for reasons other than illness ( $X^2=8.24$ ,  $p=0.0041$ )
- Parents with a college degree were more likely to ask the doctor or nurse not to give their child a vaccine for reasons other than illness (OR=2.8, CI=1.2, 6.5) compared to parents with a high school diploma



# Conclusions

- **Parents of children missing two or more vaccines have a strong association with low income, multiple providers, and multiple children in the household**
- **Three attitudes/beliefs/behaviors related to vaccine safety also contribute to vaccination behaviors**



# Conclusions

- Parental attitudes and behaviors related to vaccine safety accounted for **14.8%** of the cases
- Of the 42,937 excess cases due to the three risk factors:
  - 69.0% was due to not thinking immunizations are very safe;
  - 48.1% was due to asking their doctor not to give their child a vaccine for reasons other than illness;
  - 38.3% was due to not wanting a new baby to receive all recommended immunizations



# Conclusions

- **Having a strong concern about vaccine safety did not translate directly into asking the doctor or nurse not to give their child a vaccine. This may be due to factors associated with demographic characteristics such as trust of medical professionals, control, and availability of options**
- **Many parents who are fully immunizing their child are doing so either reluctantly or with reservations**



# Conclusions

- **The mission is not to vaccinate children at all costs but to educate, inform and carry out the process in a way that fosters trust and understanding**
- **Efforts to maintain and improve immunization coverage must focus both on logistical issues AND attitudes and beliefs**



# Limitations/Strengths

- The response rate for the survey was low
- There is the possibility of recall bias
- The primary strength of this study is the large number of independent demographic and risk variables used to predict parents of children missing two or more vaccines





# Summary

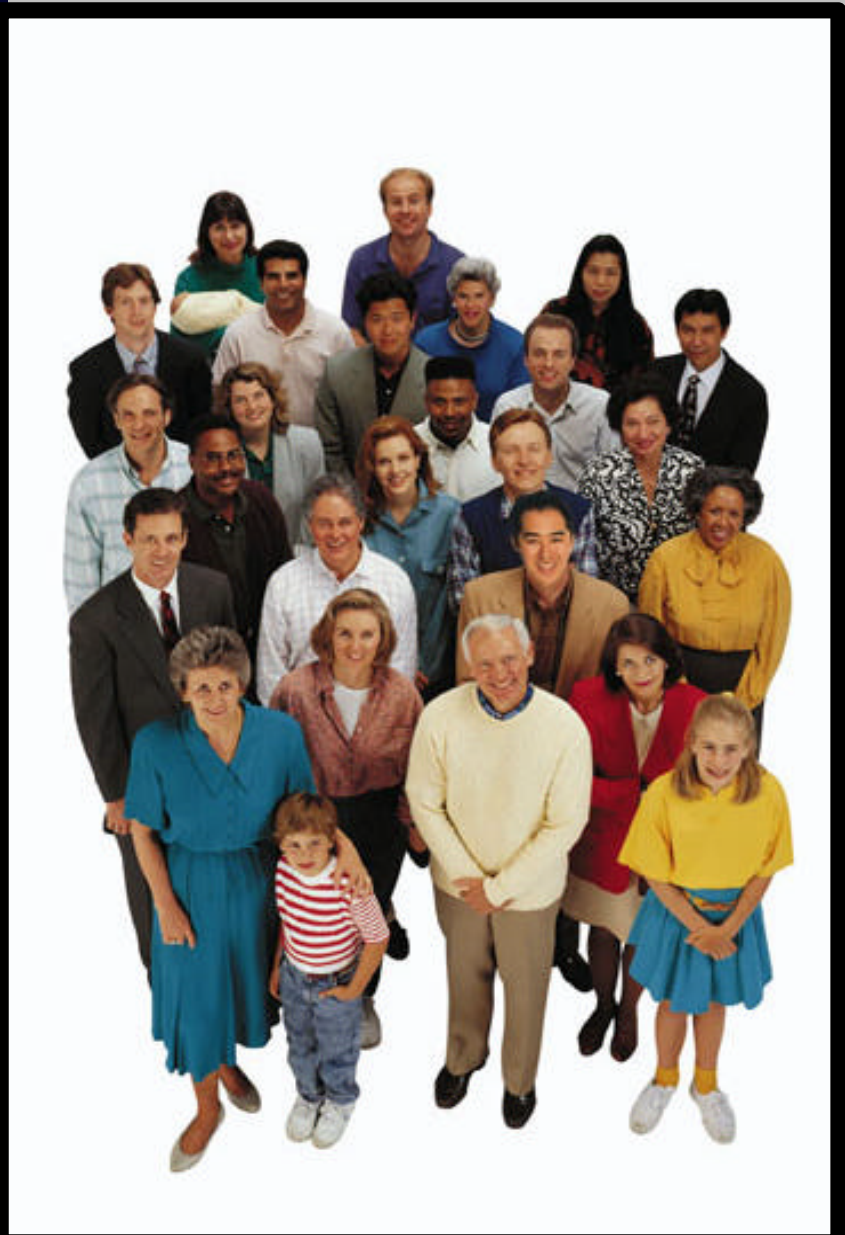
1. Income, number of providers, and number of children in the household predicted parents of children missing 2 or more vaccines
2. Parental attitudes/beliefs/behaviors related to vaccine safety also predicted parents of children missing 2 or more vaccines
3. These accounted for **14.8%** (42,937) of those in this NUTD group



# Summary

- 4. African Americans – almost 5 times as likely to report being very concerned (10) compared to whites; college graduates were less likely to be very concerned compared to those with a high school education**
- 5. Parents with a college degree were almost three times more likely than persons with a high school diploma to ask the doctor or nurse not to give their child a vaccine for reasons other than illness**





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# Ultimate Goal



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