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THE TASK
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FOR GLOBAL HEALTH

Development of an Index for Measurement of Parents' Vaccine Confidence and Linkage to Pediatric Immunization Acceptance

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Introduction



Project Component Goals:

1. To develop an index that can be used to gauge changes in U.S. parents' confidence over time
2. To develop an index that could be used in clinical settings, either to gauge an individual's vaccine confidence and/or to assess vaccine confidence over time among individuals in a provider practice



Methods

- Developed a survey with project team, vaccine experts, biostatisticians, and National Vaccine Program Office (NVPO) guidance
- National survey (N= 893)
 - Eligibility:
 - Adults over 18 years of age (parents, guardians, caregivers) in the US
 - Youngest child < 7 years
 - Able to read and understand English
- Qualtrics panel survey
- Survey administration: October-November 2016



Survey Content

- Survey included:

- Child's vaccination history

DTaP	Hepatitis B	MMR
Polio	<i>Haemophilus influenzae</i> type B	Pneumococcus
Hepatitis A	Rotavirus	Varicella

- Sociodemographics:

Parental age	Education
Race	Number of children in the household
Ethnicity	Rural/suburban/urban residence location
Income	

- 5 key NVAC components assessed from 2015 report (n=30 items)



Study Sample



Sample Characteristic (N=893)		
Age	Mean:	31.3 years
Gender	Female	82%
	Male	18%
Ethnicity	Hispanic	12%
	Non-Hispanic	88%
Race (<i>may be Hispanic/ Non-Hispanic ethnicity</i>)	White	81%
	Black/African American	12%
	All Others	7%
Educational Attainment	High School	23%
	≥College	67%
Region	Northeast	20%
	Midwest	22%
	South	41%
	West	16%
	US Territory	1%
Children in Household	1 child	43%
	2 children	35%
	≥ 3 children:	22%



Pediatric

Immunization



	Sample Reporting Receipt (N=893)	
	Yes	No/Unsure
DTaP	93.3	6.7
Polio	91.5	8.5
MMR	89.8	10.2
Hepatitis B	89.8	10.2
Rotavirus	88.7	11.3
Hib	86.4	13.6
Hepatitis A	85.5	14.5
Varicella	81.9	18.1
Pneumococcal	76.9	23.1



Analytic Approach

- Factor analysis was used to group survey items into broader categories for VCI:
 - Vaccine attitudes and beliefs
 - Vaccine information
 - Trust in government and experts
 - Social norms
- Created a summary scoring rubric for VCI
- Assessed relationship between VCI and immunization
 - Logistic regression models for each vaccine



Final VCI (N=8 items)



Rate your level of trust in the following (7-point “complete-no trust” response):

1. Food & Drug Administration (FDA), the federal government agency that licenses vaccines
2. Centers for Disease Control and Prevention (CDC), the federal government agency that makes recommendations about who should get licensed vaccines
3. Federal government agencies responsible for monitoring the safety of recommended childhood vaccines
4. Scientists involved in developing and testing new vaccines

Indicate how strongly you agree with the following (5-point Likert response):

5. It is important for everyone to get the recommended vaccines for their child(ren)

Indicate your level of confidence in each item below about childhood vaccines (6-point “complete-no confidence” response):

6. Vaccines recommended for young children are safe
7. My doctor or nurse is a trustworthy source for vaccine information
8. My doctor or nurse has my child(ren)'s best interest in mind when making vaccine recommendations



VCI Vaccine-Specific Results



- Correlated 4-category confidence levels to specific immunization
 - All significant values for comparisons and trend tests
- Calculated ORs to assess likelihood of 1 point (or 10%) increase in vaccination based on VCI score
 - All significant values for 9 pediatric immunizations
 - Little difference between ORs/aORs = highly consistent, robust
 - aOR adjusting for sociodemographics reflects VCI robustness



Results



- Strong correlation between reported vaccine receipt and VCI score
- Increasing VCI score corresponds to increased odds of vaccine receipt
 - Unadjusted and adjusted odds are similar:
 - Confidence (as measured by the VCI) seems to be acting independently of sociodemographics
 - Indicates the robustness of the scale
- We created a relatively short VCI that had strong internal reliability
- The final 8-item scale encompassed the four initially identified domains and appears to work as well as the 30-item scale



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Limitations



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- Self-reported vaccination of children
- Sample population is not representative of general population of U.S. parents of children < 7
- Requires validation



Next Steps

- Ready for application in clinical, research, and surveillance settings
- Validity testing underway with discrete, similar sample of parents of children 0 – 7 years old
- Ready to be tested with third party immunization receipt verification
- Ready to be tested with other populations



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Acknowledgements

- Qualtrics Staff
 - Brandon Powell
 - Rachel Olvera
- Avnika Amin
- Dr. Walt Orenstein
- Dr. Saad Omer

Project Support: DHHS/NVPO 1VSRNV000003-01-00