CDC Update on Vaccine Confidence-related Research and Activities

National Center for Immunization & Respiratory Diseases

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Overview

CDC Research and Communication Activities

- CDC conducts ongoing mixed-method research into parent, patient, and healthcare provider (HCP) knowledge and attitudes regarding vaccines
- Research informs our understanding and shapes our education and outreach efforts across the lifespan
- Recent studies include:
  - Qualitative and quantitative research with pregnant women and prenatal care providers regarding maternal vaccinations
  - Surveys with parents and pediatricians regarding barriers and facilitators to on-time HPV vaccination
  - Focus groups and surveys to understand decision-making for adult vaccines
  - Ongoing surveys with parents and clinicians regarding infant vaccination knowledge, attitudes, and behaviors
- Focus today on three recent projects:
  - 2016 National Poll of Parents
  - Longitudinal Mothers' Survey
  - Cognitive interviews with vaccine-hesitant parents

2016 National Poll of Parents

National Poll Survey: Goal and Objectives

- Goal:
  - Assist CDC to better understand the behaviors, questions and concerns surrounding childhood immunization and be able to develop messages, communication products, and recommendations to help improve national immunization rates
- Objectives:
  - Assess vaccine knowledge attitudes and beliefs
  - Determine self-reported vaccination behaviors and vaccination plans
  - Explore parental perceptions of health care professional communication
- Similar polls conducted in 2012 and 2014

National Poll Survey: Methods

- Internet survey via GfK Knowledge Panel
  - Surveyed 2,510 parents of kids under 7 years of age
  - Fielded in August/September 2016
- 57.6% completion rate
- Data were weighted to represent parents nationally
- Descriptive analysis conducted using SPSS

So far, when vaccines have been recommended for your youngest child at a check-up, have you gotten them all at those visits, or are there any vaccines that he or she did not get at the time that they were recommended? (n=2,510)

Response Options to Survey Question	%
Received all vaccines as recommended	86.1
Did not receive all vaccines as recommended, but currently on a catch-up schedule	2.3
Chose to delay at least one but not all recommended vaccines	5.8
Chose to delay all recommended vaccines	0.6
Chose to refuse at least one but not all recommended vaccines	2.3
Chose to refuse and delay some but not all recommended vaccines	1.4
Chose to refuse all vaccines	1.6

Hesitant Acceptors

- Of the respondents who reported accepting all recommended vaccines (n = 2,197), 17.5% reported that they thought about not getting a vaccine at a particular visit, but then changed their mind and decided to get them as recommended
- The most commonly cited reason for changing their mind was a doctor/HCP

What made you change your mind to get these vaccines?	(n = 380)
Doctor/HCP	44.5%
I just thought more about it	38.6%
Day care/school/travel requirement	20.7%
Convenience/did not want to have to come back for it later	10.0%
Friends and/or Family	7.5%

Vaccine Delay

- Which vaccines
  - In those that only delayed vaccines, Flu, HepB (birth dose), and MMR were the most delayed vaccines
  - In those that delayed and refused some vaccines, Flu, Varicella, and MMR were the most frequently delayed
- Reasons for delay
  - In both groups that delayed vaccines, “too many vaccines/medicines” was cited as top reason for vaccine delay followed by “fear of side effects”
  - “Too many shots” was the third highest reason for those that only delayed, but this was not seen in the delay/refuse group

Vaccine Information Sources

- Baby's doctor/HCP was the most trusted source of vaccine information among parents, regardless of vaccine behavior
  - Varied from 98% among parents who accepted all vaccines on time to 63% among parents who refused one or more vaccines
- Other trusted sources of information across all groups included family members and scientific or medical journals
- 24% of parents reported "Internet" as one of their top 3 sources of vaccine information
  - Most of these parents, regardless of acceptance category, used a search engine when they looked for vaccine information online

Questions and Concerns

- The most common questions and concerns overall focused on short and long-term side effects, vaccine ingredients, the number of vaccines and their impact on the immune system, the safety of combination vaccines, and general vaccine safety
- 20% of parents surveyed were concerned about specific ingredients (thimerosal, aluminum, or mercury), and 17% still had questions or concerns about vaccines and autism
- Hesitant acceptors tended to have concerns across the board, most similar to those held by parents who were delaying or refusing vaccines

National Poll Survey: Conclusions

- Most parents surveyed reported accepting vaccines for their children as recommended
  - Some of those parents had considered delaying or refusing vaccines but decided to accept vaccination as recommended, most commonly because they discussed vaccines further with their child's HCP
- Regardless of vaccination acceptance, most parents considered their child's doctor a trusted source of vaccine information
- The number of vaccines, vaccine ingredients, and potential side effects were common concerns
  - Hesitant acceptors tended to have questions and concerns that were similar to parents who were delaying or refusing vaccines, but trusted their child's doctor as an information source in numbers similar to parents who accepted vaccines

Longitudinal Mothers’ Survey

Longitudinal Mothers' Survey: Goal and Objectives

- Goal:
  - Examine mothers' knowledge, attitudes, beliefs, behaviors, and information needs throughout the vaccination process, from the second trimester of pregnancy to their child's 19th month of life
- Objectives:
  - Understand how mothers' needs, expectations, and attitudes change over time, and identify how best to meet those needs and expectations
  - Identify any critical decision points in the vaccination process

Longitudinal Mothers' Survey: Methods

- Series of 7 online surveys sent to a panel of 200 pregnant women/first-time moms beginning in their second trimester of pregnancy and ending when their child was 19 months old
  - 169 participants completed all 7 surveys (84.5% completion rate)
  - Excluded women under age 18, women pregnant with more than one baby, and women who reported that they would not accept any vaccines for their child
- Surveys were fielded from 6/14 through 3/16
- Conducted in partnership with NVPO
- Results from the baseline survey were presented at September 2015 NVAC meeting and published later that year[1]

JL Weiner, et al. Childhood immunizations: First time expectant mothers' knowledge, beliefs, intentions, and behaviors. Vaccine. 2015;33(S4):D92-8.

Planned and Self-reported Vaccination Behavior

- Most mothers (90%) had decided on vaccine plans by the baseline survey, and there was little variation between planned and actual behavior over the course of the surveys

	2nd Trimester	3rd Trimester	Post-2 month Visit	Post-4 month Visit	Post-6 month Visit	Post-12 month Visit	Post-15-18 month Visit
Receive all as scheduled	75	68.3	77.5	79.5	82.2	77.9	82.3
Receive all but space out or delay	10.5	16.1	15.2	13.6	10.9	13.4	13
Receive some but not all	4	4.3	5.6	6.3	6.3	7.6	4.1
Receive none			0.6		0.6	1.2	0.6
Not yet decided	10.5	11.3	1.1	0.6			

Vaccine Interest, Self-reported Knowledge, and Confidence

- Interest in vaccines as a topic was highest before the baby was born, with 48% reporting that they were “very interested” at baseline; however, over 1/3 of participants were still “very interested” after their child’s 15-18 month visit
- Even after several vaccine visits, only 22% of mothers reported being “very satisfied” with their current level of knowledge regarding childhood vaccines
  - This did go up steadily with time and experience (6% at baseline)
- Confidence in the safety, effectiveness, and value of vaccines was stable during pregnancy but increased over time as children attended well-baby visits

Communication about Vaccines at Office Visits

- Discussion about vaccine questions or concerns was most common at the 2-month visit (see below); participants also reported little discussion with their prenatal HCP about their baby's vaccines
- Satisfaction with vaccine discussions was stable across visits, but there was room for improvement

	Post-2 month Visit	Post-4 month Visit	Post-6 month Visit	Post-12 month Visit	Post-15-18 month Visit
Doctor	74.7	58.0	52.3	55.8	51.5
Nurse or nursing assistant	8.4	8.5	9.8	13.4	11.8
Nurse practitioner or physician assistant	5.1	5.7	5.7	2.3	1.2
Other	0.6			0.6	
I did not have any questions or concerns for my child's doctor or nurse about vaccines	10.7	26.7	31.6	27.3	34.9

Longitudinal Mothers' Survey: Conclusions

- Maternal decisions on vaccine acceptance were almost always made before a child was born and remained relatively stable over time
- Confidence in vaccines was relatively high and stable, but did increase with time and experience
- Participants most commonly spoke with their child's doctor about their vaccine questions and concerns; these discussions were most common at the 2-month well visit
- There is room for improvement in mothers' perceived satisfaction with vaccine discussions during office visits

Interviews with Vaccine Hesitant Parents

Parent interviews: Goal and Objectives

CDC messages and materials were tested with vaccine-hesitant parents (VHPs) to:

- Explore thoughts and perceptions on messages and materials designed for parents about childhood vaccination
- Examine whether existing messages and materials address VHPs' questions and concerns
- Identify possible improvements to how CDC communicates with this audience
- Identify whether additional informational opportunities or outstanding informational needs exist

Parent interviews: Methodology

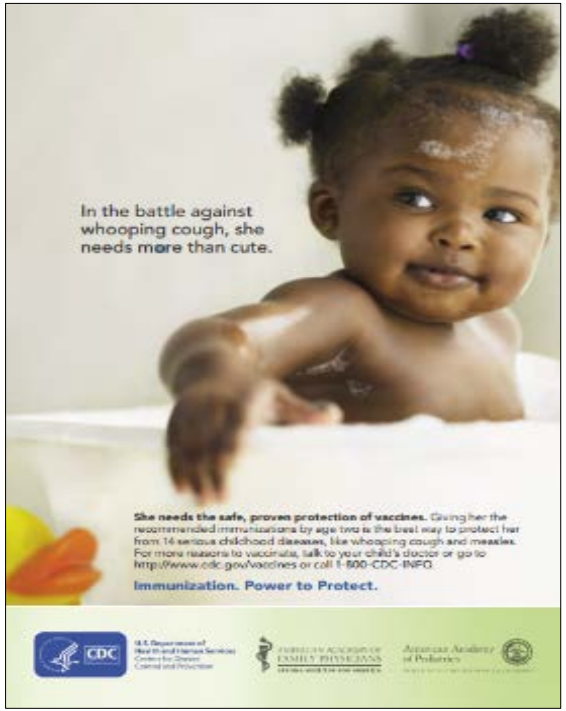
Data collection:

- 24 cognitive interviews with parents or caregivers of children ages 0 through 23 months with an expressed hesitancy toward childhood vaccinations
  - 6 in-person in Washington, D.C.
  - 18 by telephone using an online meeting platform to view materials
- Interviews were:
  - Conducted by 3 moderators
  - 60 minutes in length
  - Audio recorded and transcribed

Parent Interviews: Summary of Findings

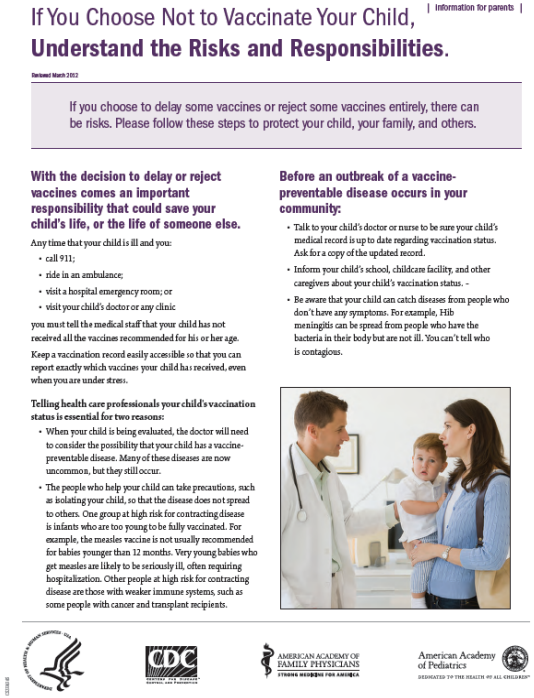
- Concerns among these parents focused on both short and long-term side effects of vaccination
- All discussed vaccines with their child's doctor
  - Some looked to the Internet when they felt the doctor was "pushing" vaccines
  - Some felt the child's doctor was withholding information from them
- Most had decided to vaccinate their child (either as "hesitant acceptors" or with some delay)
  - Some delayed because of concerns about side effects, because their child didn't go to childcare at the time, or concerns over their child being sick at time of vaccination
  - Participants who were familiar with vaccines that they delayed mentioned concerns over MMR, rotavirus, polio, and flu vaccines. However, many parents were unaware of specific vaccines they delayed
- Informational needs included disease prevalence, repercussions associated with not vaccinating, vaccine effectiveness, and vaccine ingredients

Materials Explored—Print Advertisements



OR

Materials Explored—Fact sheet and Infographic



If You Choose Not to Vaccinate Your Child,

Understand the Risks and Responsibilities.

| Information for parents |

Reviewed March 2013

If you choose to delay some vaccines or reject some vaccines entirely, there can be risks. Please follow these steps to protect your child, your family, and others.

With the decision to delay or reject vaccines comes an important responsibility that could save your child's life, or the life of someone else.

Any time that your child is ill and you:

- call 911;
- ride in an ambulance;
- visit a hospital emergency room; or
- visit your child's doctor or any clinic

you must tell the medical staff that your child has not received all the vaccines recommended for his or her age.

Keep a vaccination record easily accessible so that you can report exactly which vaccines your child has received, even when you are under stress.

Telling health care professionals your child's vaccination status is essential for two reasons:

- When your child is being evaluated, the doctor will need to consider the possibility that your child has a vaccine-preventable disease. Many of these diseases are now uncommon, but they still occur.
- The people who help your child can take precautions, such as isolating your child, so that the disease does not spread to others. One group at high risk for contracting disease is infants who are too young to be fully vaccinated. For example, the measles vaccine is not usually recommended for babies younger than 12 months. Very young babies who get measles are likely to be seriously ill, often requiring hospitalization. Other people at high risk for contracting disease are those with weaker immune systems, such as some people with cancer and transplant recipients.

Before an outbreak of a vaccine-preventable disease occurs in your community:

- Talk to your child's doctor or nurse to be sure your child's medical record is up to date regarding vaccination status. Ask for a copy of the updated record.
- Inform your child's school, childcare facility, and other caregivers about your child's vaccination status. -
- Be aware that your child can catch diseases from people who don't have any symptoms. For example, Hib meningitis can be spread from people who have the bacteria in their body but are not ill. You can't tell who is contagious.

CDC

AMERICAN ACADEMY OF FAMILY PHYSICIANS

American Academy of Pediatrics

OR

Parent Interviews: Review of Materials

- Participants felt that the materials were informative and easy to understand
- Participants liked that images were inclusive and diverse
- Materials increased intention for on-time vaccination for some, but not all, participants
- Suggestions for improvement included:
  - Fully address questions and concerns related to:
    - Vaccine side effects
    - Risks and repercussions of not vaccinating
    - Combination of vaccines in single shot or multiple shots in one visit
    - Vaccine schedule
  - Simplify materials (e.g., shorten and focus on one idea at a time)
  - Include more graphics and statistics

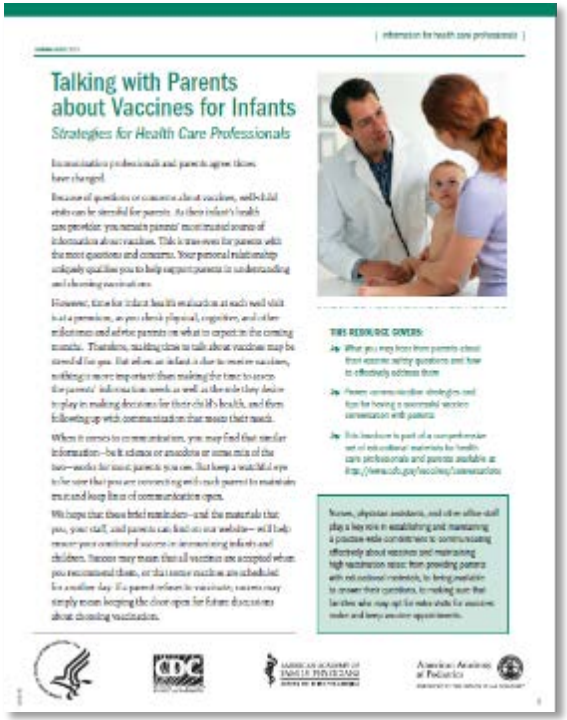
Parent Interviews: Conclusions

- Interview participants wanted to know more about the potential short and long-term side effects of vaccines, as well as the potential consequences of not vaccinating
- Parents did discuss vaccines with their child's doctor, but trust in the doctor's information and advice varied
- Materials were well-received by parents

Resources and Ongoing Research

Provider Resources for Vaccine Conversations with Parents

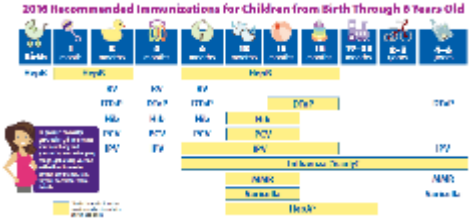
- Developed with partners AAP and AAFP
- Based on formative research and reviewed annually
- Uses risk communication principles
- Provides information for conversations on vaccines, vaccine safety, and vaccine preventable diseases
- Includes supplemental resources for parents


Talking with Parents about Vaccines for Infants

Strategies for Health Care Professionals

www.cdc.gov/vaccines/conversations

Resources for Parents



www.cdc.gov/vaccines/partners/childhood/multimedia.html

Resources for Parents:
If you Choose not to Vaccinate

- For parents who are considering or have decided to delay or refuse recommended vaccines
  - Tested in our cognitive interviews with vaccine hesitant parents
- Discusses:
  - Steps to take before or during an outbreak to help protect their family and community
  - The importance of notifying healthcare professionals that a child is not fully vaccinated
  - Considerations when travelling
- Main message: this is not a risk-free choice


If You Choose Not to Vaccinate Your Child,

Understand the Risks and Responsibilities.

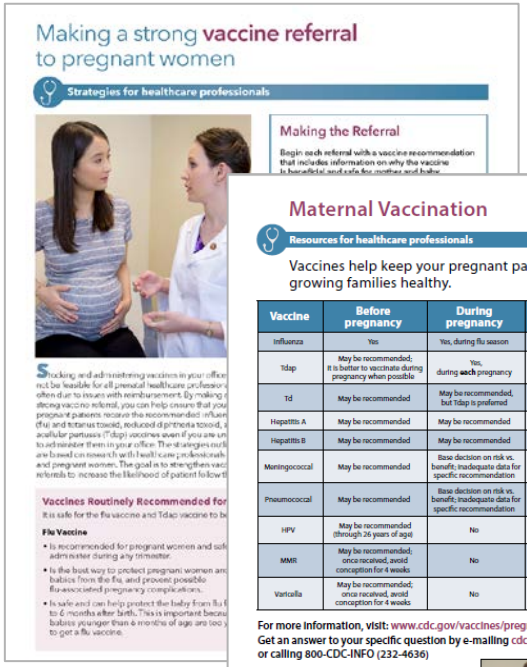
If you choose to delay some vaccines or reject some vaccines entirely, there can be risks. Please follow these steps to protect your child, your family, and others.

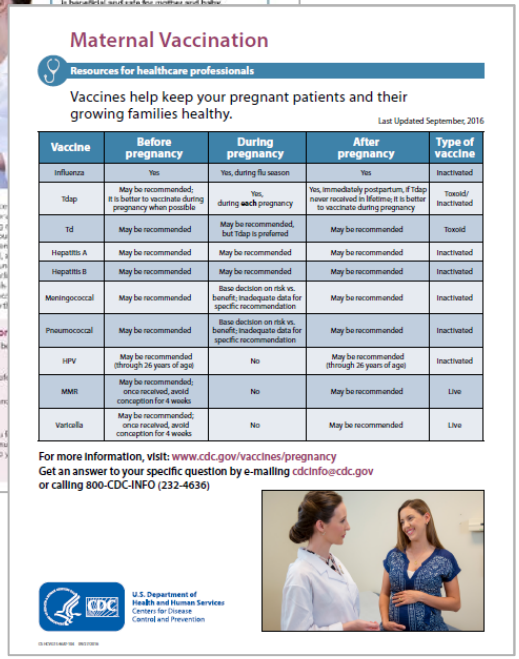
With the decision to delay or reject vaccines comes an important responsibility that could save your child's life, or the life of someone else.

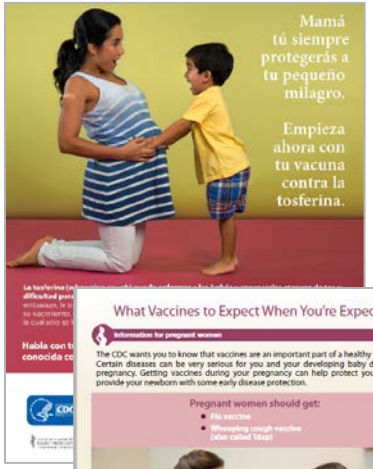
Before an outbreak of a vaccine-preventable disease occurs in your community:

American Academy of Pediatrics

Maternal Vaccination Print Resources







www.cdc.gov/vaccines/pregnancy

Vaccination Acceptance Survey Questionnaire Development

- Partnership between CDC/NCIRD and NCHS Collaborating Center for Questionnaire Design Evaluation Research (CCQDER)
- Developing a series of survey modules suitable for assessing vaccination acceptance issues in routine and rapid response surveys
- Using focus groups and cognitive interviews to refine existing and design new questions
- Process is expected to conclude in September 2017 with delivery of the final questionnaires shortly afterward
- Final report will be available by end of year and the final report and the questionnaires will be uploaded into CCQDER Q-Bank

Summary

- CDC routinely conducts lifespan research and evaluation to inform vaccine communication and education activities with HCPs and the general public
- Parent confidence in vaccines nationally is high and stable, and reflects high coverage with recommended childhood vaccines
- Pregnant women we surveyed were generally supportive of vaccines, and most had decided on a plan for vaccination before their child's birth
- Parents who refused, delayed, or accepted vaccines with hesitation expressed concerns about short and long-term effects of vaccines, and wanted more information on the consequences of not vaccinating their child as recommended
- Regardless of vaccination behavior, most parents discuss vaccines with their child's doctor; our communication efforts work to support both HCPs and parents in these discussions

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

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