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Vaccine Hesitancy and Alternative Vaccine Schedules

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Objectives

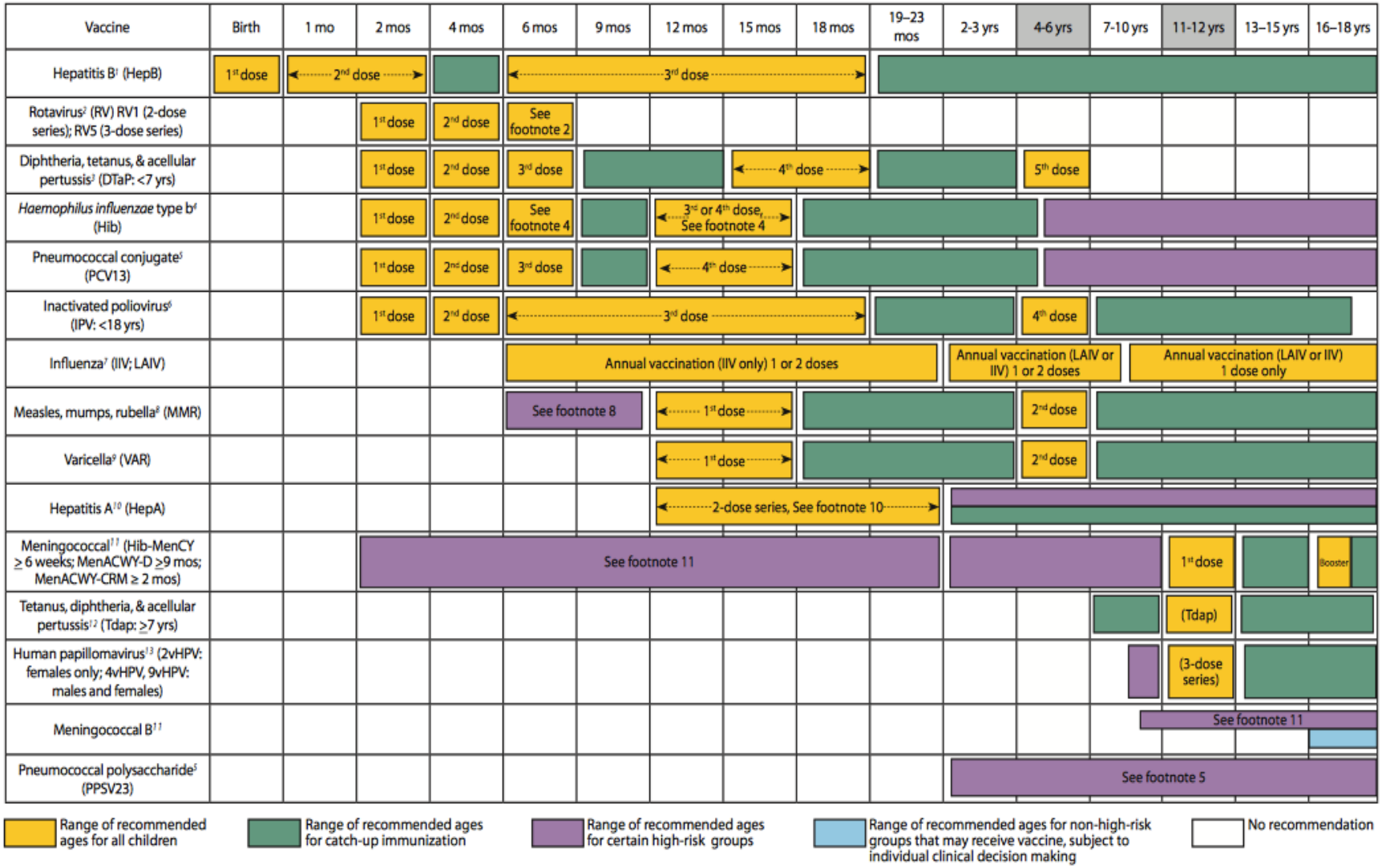
- Explore factors that contribute to vaccine hesitancy
- Review evidence related to the safety of the currently recommended vaccine schedule
- Review common questions and misperceptions among parents that contribute to requests for ‘alternative’ vaccine schedules
- Explore strategies for addressing vaccine concerns

2016 Vaccine Schedule

Figure 1. Recommended immunization schedule for persons aged 0 through 18 years – United States, 2016.

(FOR THOSE WHO FALL BEHIND OR START LATE, SEE THE CATCH-UP SCHEDULE [FIGURE 2]).

These recommendations must be read with the footnotes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars in Figure 1. To determine minimum intervals between doses, see the catch-up schedule (Figure 2). School entry and adolescent vaccine age groups are shaded.



Impact of Vaccines

DISEASE	PRE-VACCINE ERA ESTIMATED ANNUAL MORBIDITY*	MOST RECENT REPORTS OR ESTIMATES† OF U.S. CASES	PERCENT DECREASE
Diphtheria	21,053	0†	100%
H. influenzae (invasive, <5 years of age)	20,000	31‡	>99%
Hepatitis A	117,333	2,890§	98%
Hepatitis B (acute)	66,232	18,800§	72%
Measles	530,217	187†	>99%
Mumps	162,344	584†	>99%
Pertussis	200,752	28,639†	86%
Pneumococcal disease (invasive, <5 years of age)	16,069	1,900‡‡	88%
Polio (paralytic)	16,316	1†	>99%
Rotavirus (hospitalizations, <3 years of age)	62,500**	12,500††	80%
Rubella	47,745	9†	>99%
Congenital Rubella Syndrome	152	1†	99%
Smallpox	29,005	0†	100%
Tetanus	580	26†	96%
Varicella	4,085,120	167,490§§	96%

* CDC. *JAMA* November 14, 2007; 298(18):2155–63.

† CDC. *MMWR* August 15, 2014; 63(32):702–15.

‡ An additional 10 cases of Hib are estimated to have occurred among the 185 reports of Hib (<5 years) with unknown serotype.

§ CDC. Viral Hepatitis Surveillance – United States, 2011.

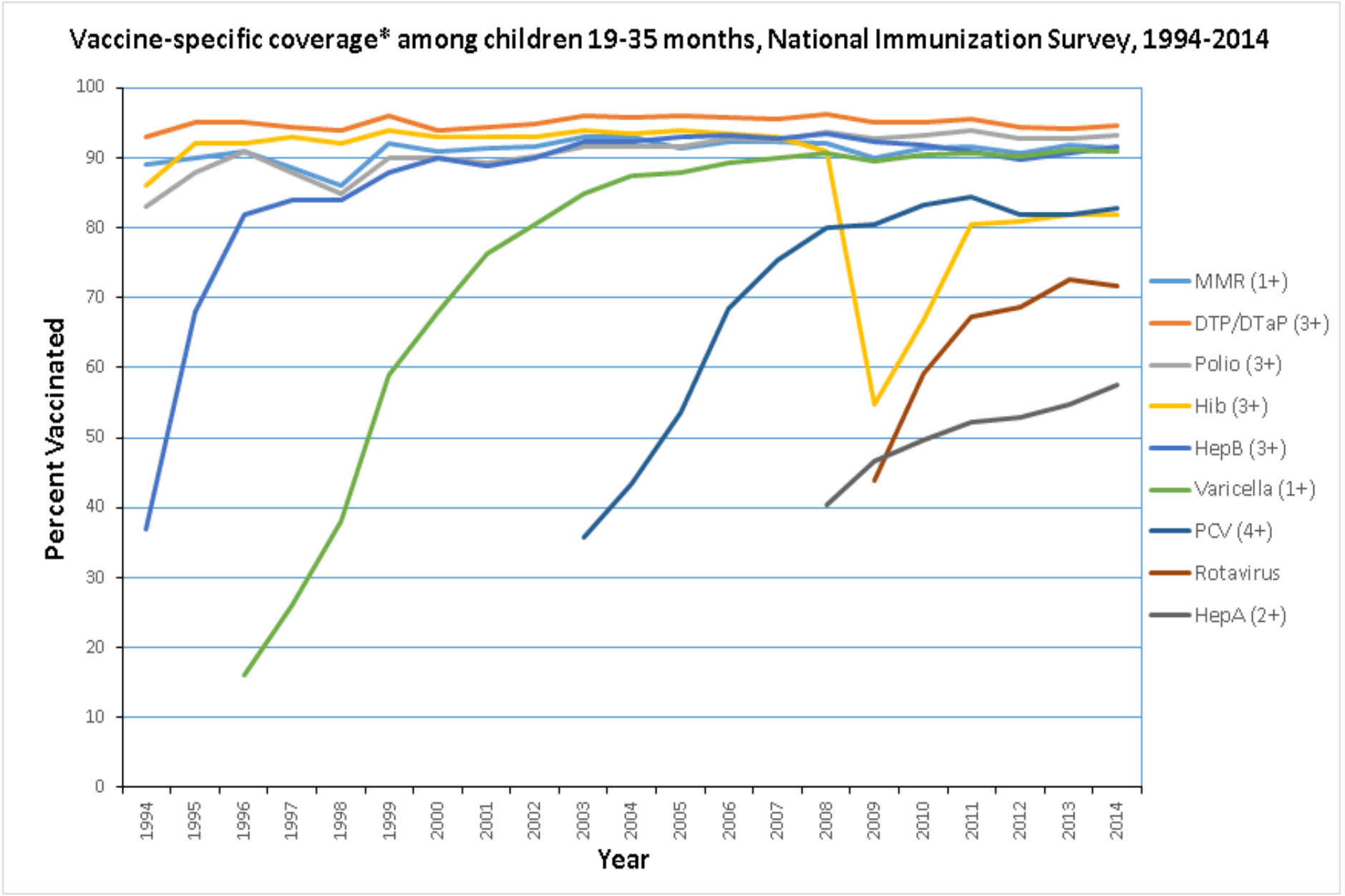
** CDC. *MMWR*, February 6, 2009; 58(RR-2):1–25.

‡‡ CDC. Active Bacterial Core Surveillance, 2013 data (unpublished).

†† CDC. New Vaccine Surveillance Network, 2013 data (unpublished); U.S. rotavirus disease now has a biennial pattern.

§§ CDC. Varicella Program, 2013 data (unpublished).

www.immunize.org/catg.d/p4037.pdf
Item #P4037 (12/14)

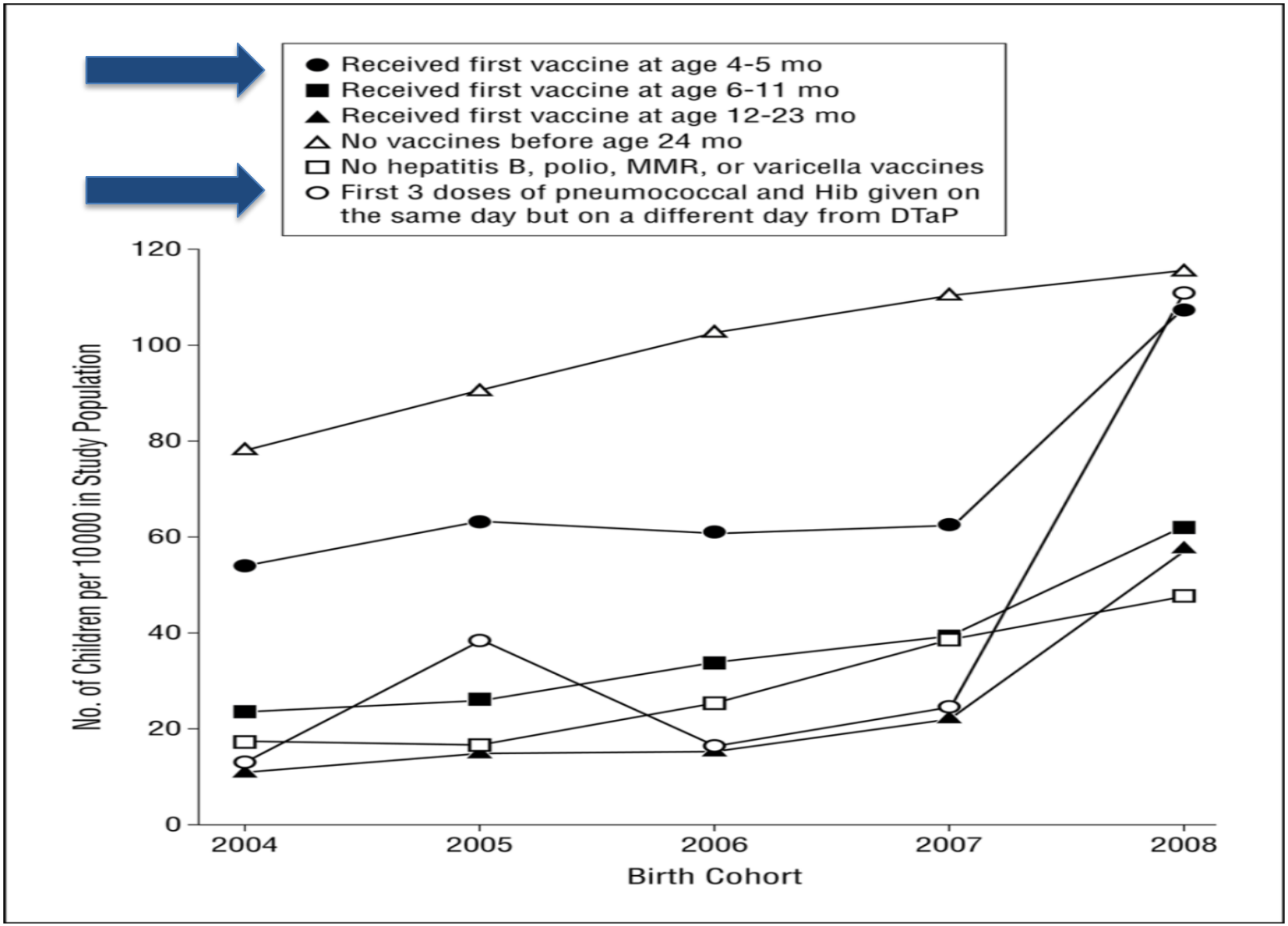

Vaccine-specific coverage* among children 19-35 months, National Immunization Survey, 1994-2014
Percent Vaccinated
100
90
80
70
60
50
40
30
20
10
0
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Year
MMR (1+)
DTP/DTaP (3+)
Polio (3+)
Hib (3+)
HepB (3+)
Varicella (1+)
PCV (4+)
Rotavirus
HepA (2+)

Epidemiology of Vaccine Refusal

- Majority of physicians report >1 vaccine refusal / month
- >90% report request to spread out vaccines
  - 1 out of 5 report that at least 10% of parents make request
- 13% children under-vaccinated due to parental choice

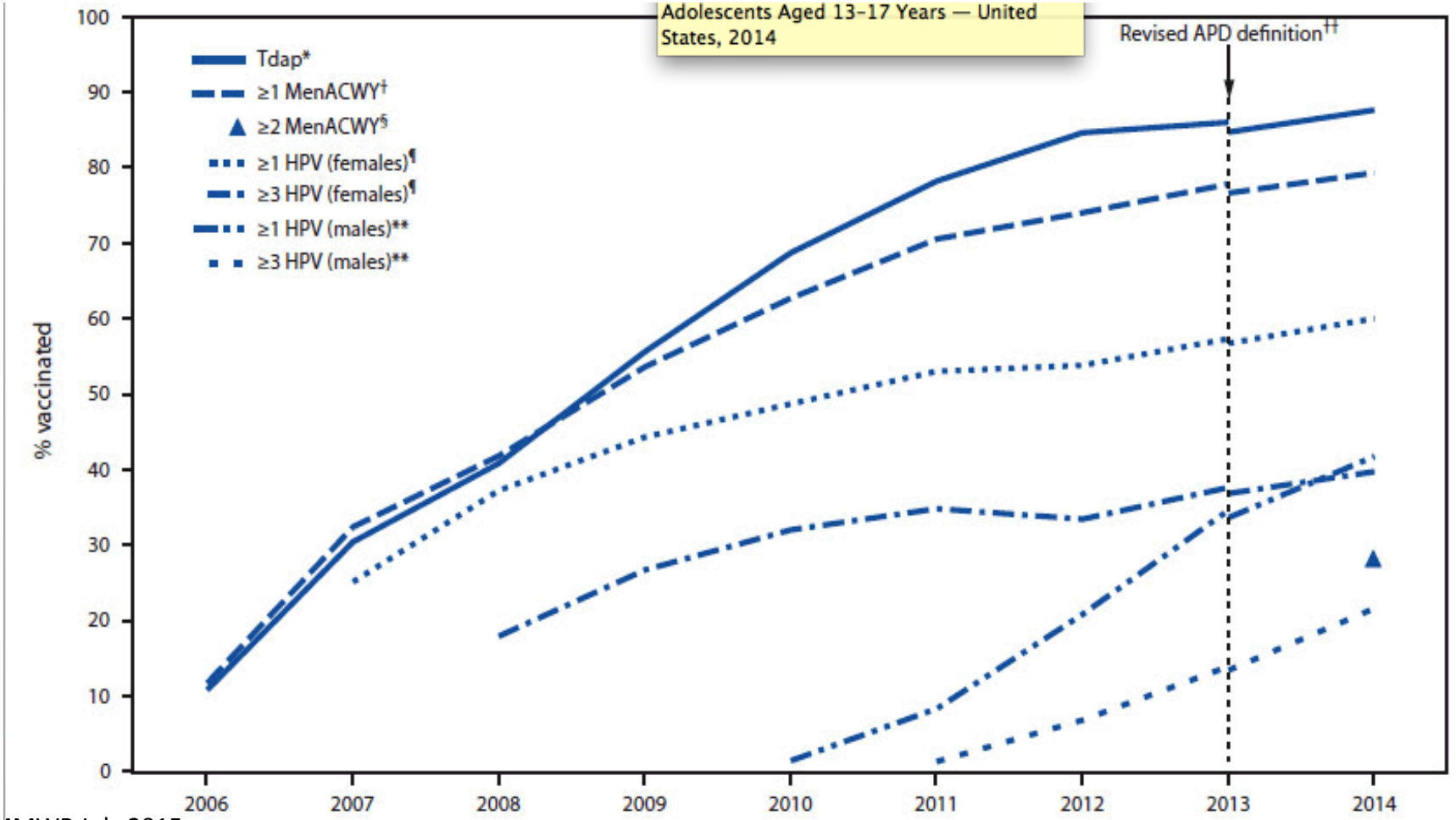
Glanz JM *JAMA Pediatr.* 2013;167(3):274-281; Gowda, etal. Hum Vac Imm, 2013; Kempe A *Pediatrics.* 2015

Epidemiology of Vaccine Refusal



HPV Vaccine Rates Low Compared to Other Adolescent Vaccines

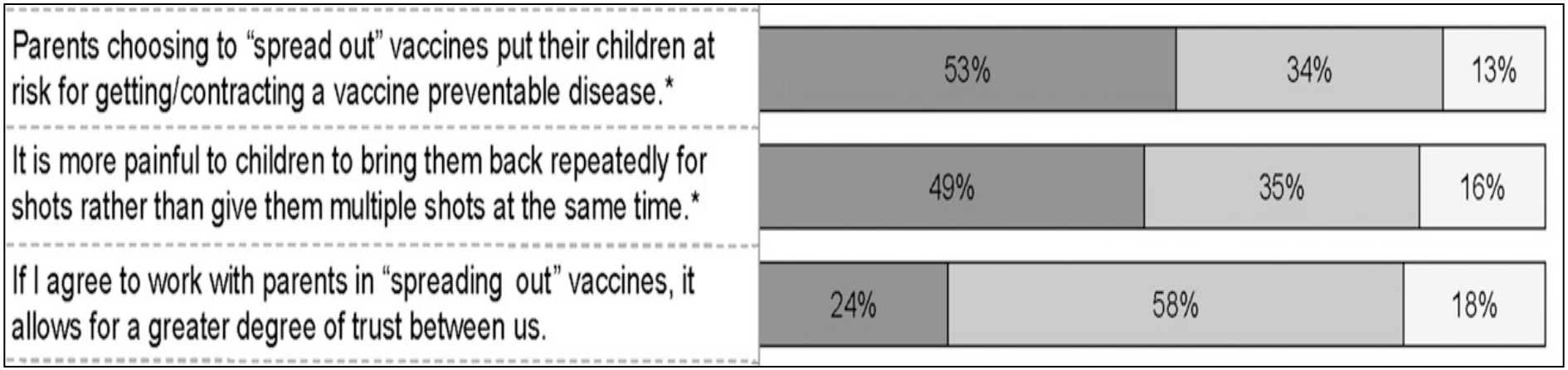
National Estimated Vaccination Coverage Levels among Adolescents 13-17 Years, NIS-Teen 2006-2014



MMWR July 2015

Pediatricians and Delayed Schedules

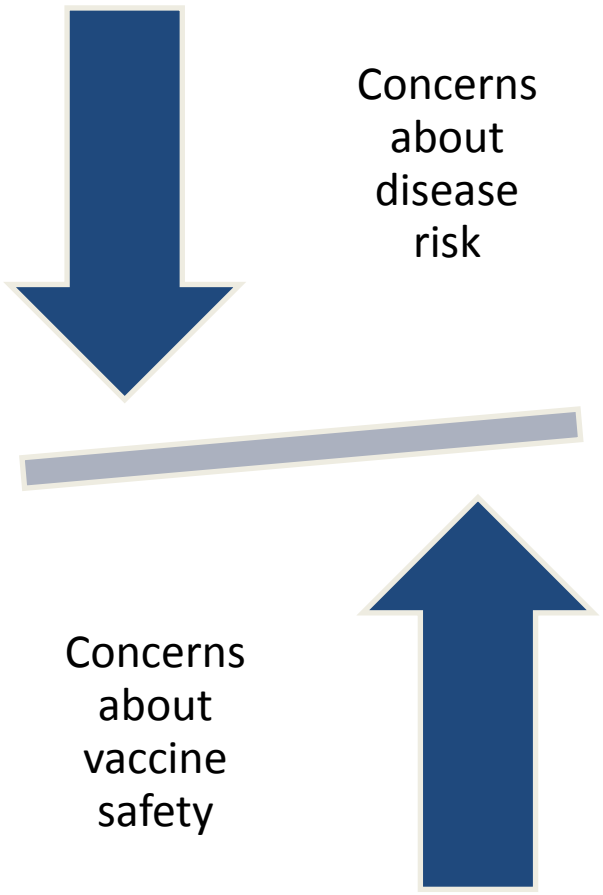
- Growing number of pediatricians always / often accept requests for delay (13 → 37%)
  - But…<10% agree with parents who make requests



- Likelihood of accepting requests associated with beliefs about the vaccine schedule
- Providers may overestimate parental concerns about # of shots

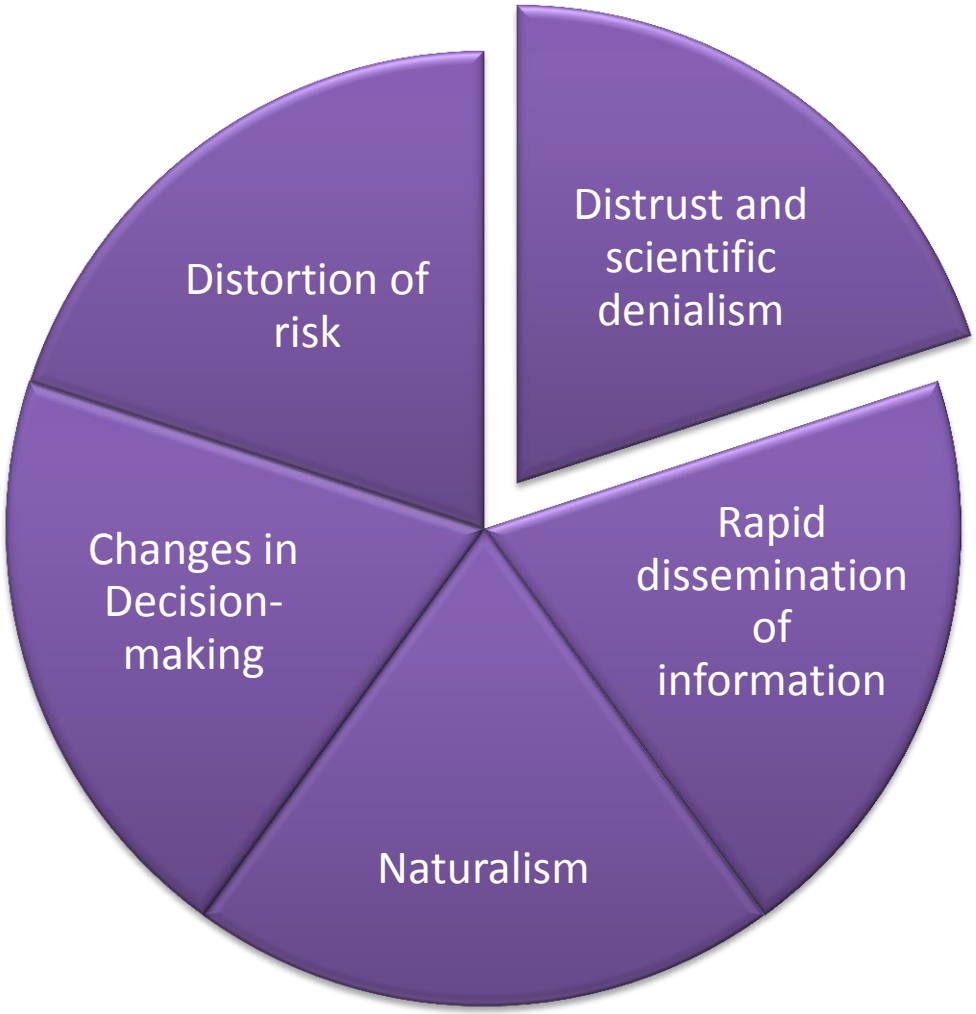
Kempe A. Pediatrics, 2015; Wallace etal, Vaccine 2014

A consequence of success



- Low perceived risk of VPD's and underappreciation of transmission risks
- Underappreciation of disease severity
- Easy access to misinformation → persistent vaccine safety concerns

A consequence of success and changing times



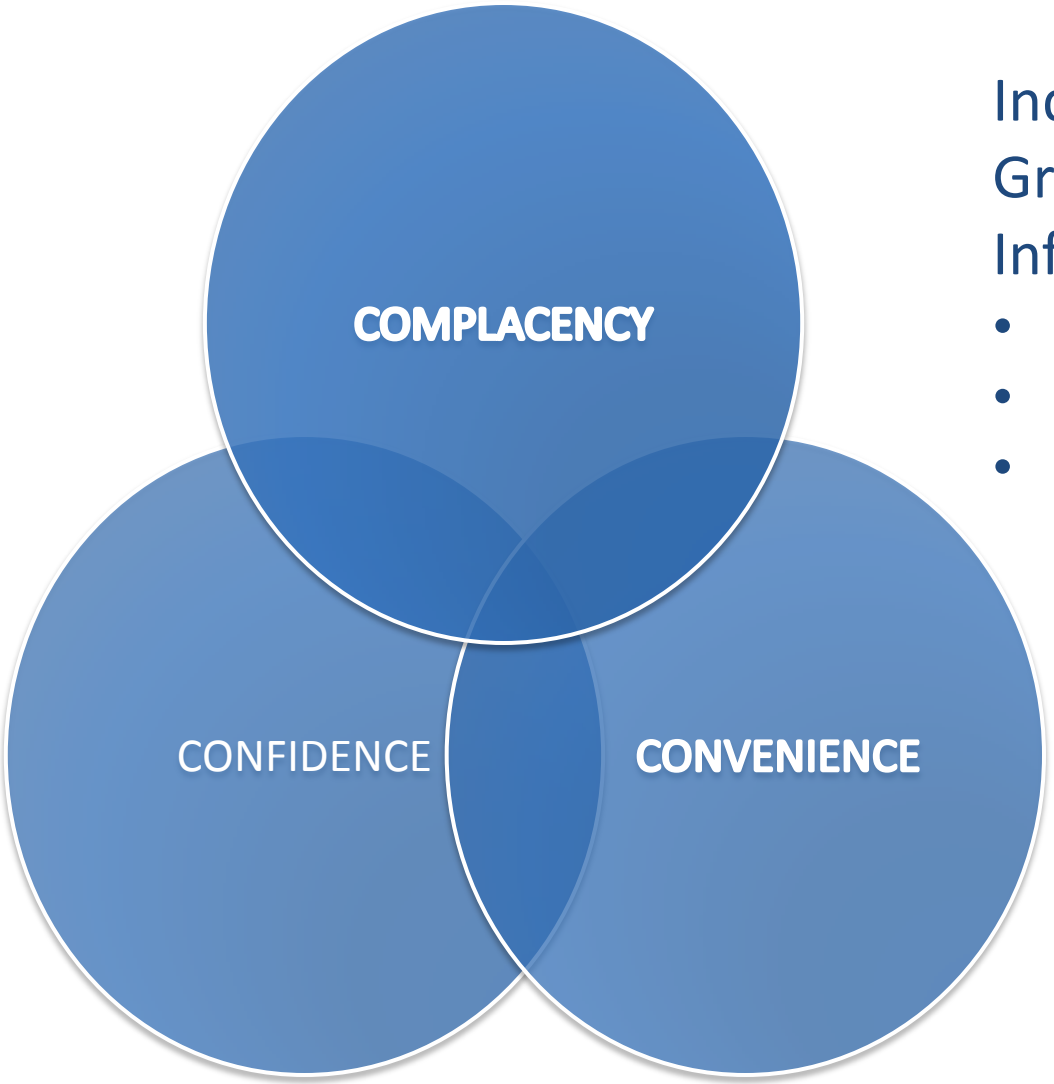
Defining Vaccine Hesitancy

- WHO Strategic Advisory Group of Experts on Immunization and the National Vaccine Advisory Committee established vaccine hesitancy working groups

- Define Vaccine Hesitancy
- Model Determinants of Vaccine Hesitancy
- Identify Strategies to Measure and Address Hesitancy

SAGE Model

Contextual Influences
- Media
- History
- Politics

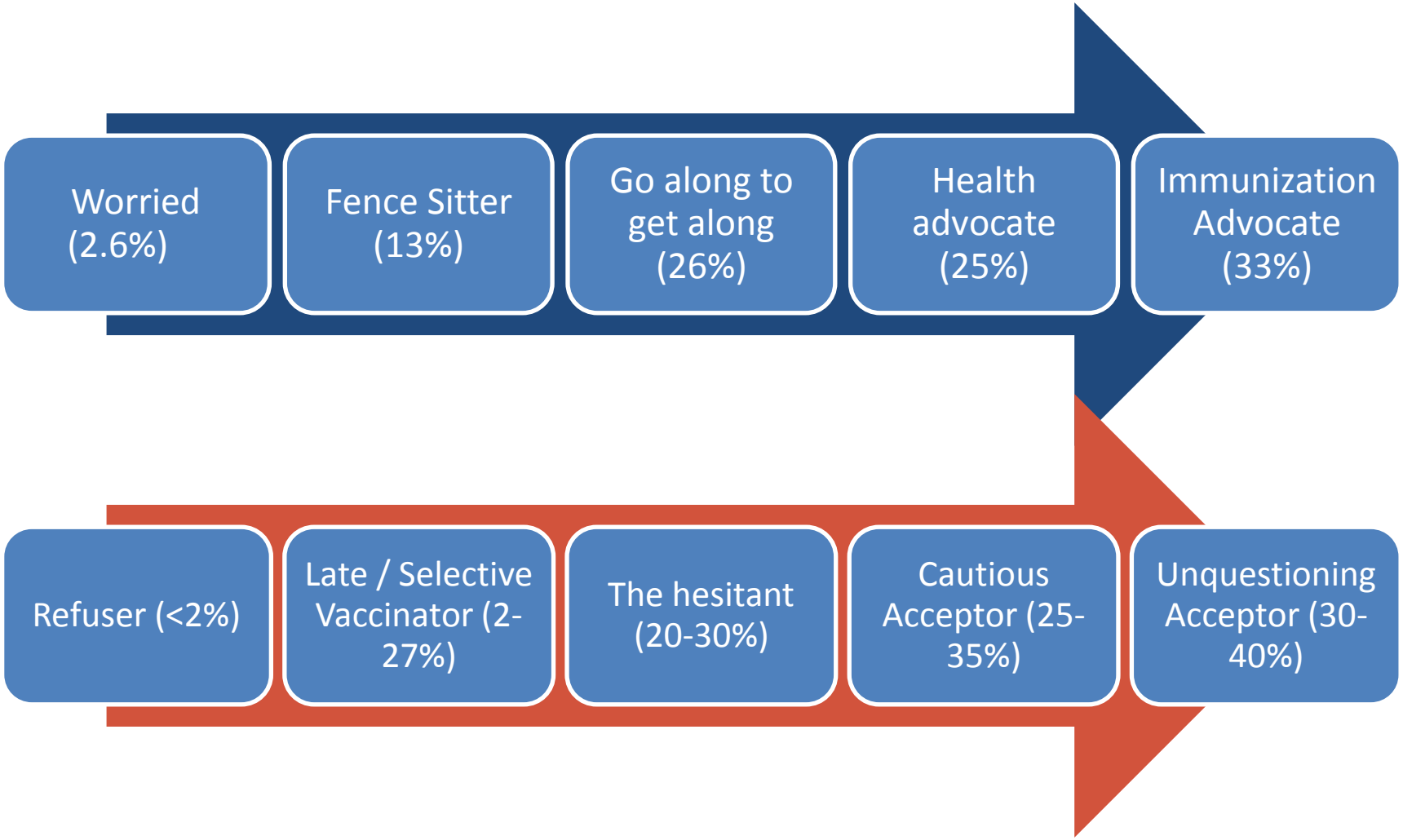


Individual / Group Influences
- Health beliefs
- Social Norms
- Perceived Risk

Vaccine Specific Issues
- Cost
- Schedule
- Delivery

Adapted from MacDonald NE, SAGE Working Group on Vaccine Hesitancy; Vaccine 33 (2015).

The spectrum of vaccine acceptance



Gust DA, et al. Am J Health Behavior, 2005,29; Leask J, etal. BMC Pediatrics. 2012, 12.

Too many shots

Too many preservatives

That vaccine hasn't been around long enough yet

Isn't natural immunity better?

I want to decide what is best for my child

WHY PARENTS REFUSE OR DELAY VACCINES FOR THEIR CHILDREN: ADDRESSING COMMON MISPERCEPTIONS

We never see this disease anymore

Pharmaceutical companies are just pushing vaccines to make money

Why do parents request alternative vaccine schedules?

- Vaccine safety concerns about long term side effects or specific outcomes like autism
- Low perceived risk of child contracting a vaccine preventable disease
- Concern that vaccination will affect immune system
- Parents' desire to be involved in child's medical care
- Concerns about vaccine additives
- Concerns about fever, pain associated with vaccination

SEARS PARENTING LIBRARY

The Vaccine Book

Making the Right Decision for Your Child

Robert W. Sears, MD, FAAP

Dr. Bob's
Alternative Vaccine Schedule

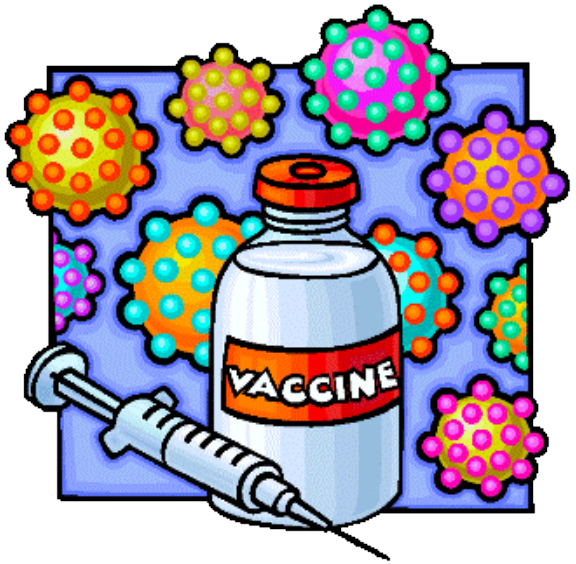
2 months	DTaP, Rotavirus
*3 months**	Pc, HIB
4 months	DTaP, Rotavirus
*5 months**	Pc, HIB
6 months	DTaP, Rotavirus
*7 months**	Pc, HIB
9 months	Polio, Flu (2 doses†)
12 months	Mumps, Polio
15 months	Pc, HIB
18 months	DTaP, Chickenpox

Are all of these vaccines too much for the immune system, especially in babies?

The schedule has changed…

Year	Vaccines	# shots by 2 years of age	# shots at one time
1900	Smallpox	1	1
1980	DTwP, Polio (OPV) MMR	5	2
2011	DTaP, Polio (IPV) MMR, Varicella Hib, Pneumococcal conj. Hepatitis A and B Influenza, Rotavirus	26	5

Fewer immunologic components are in vaccines today than 100 years ago



Number of antigens in vaccines

Year	Vaccines	# shots by age 2 yrs	# shots at one time	# antigens
1900	Smallpox	1	1	**200**
1980	Diptheria Tetanus Pertussis (wc) Polio (OPV) Measles Mumps Rubella	5	2	1 1 3,000 15 10 9 5 **~3,041**

Number of antigens in vaccines

Year	Vaccines	# shots by age 2 yrs	# shots at one time	# antigens
2012	Diptheria Tetanus Pertussis (ac) Polio (IPV) MMR Varicella Hib Pneumococcal conj. Hepatitis A and B Influenza Rotavirus	26	5	1 1 2-5 15 24 69 2 8 5 8 15 **~150-153**

That still seems like a lot - can infants handle 150 antigens?

- From birth, infants are challenged by bacteria in the environment (colonizing bacteria on intestines, skin, and throat; bacteria inhaled on dust).
- Vigorous sIgA responses within the first week of life keeps colonizing bacteria from invading.

Are infants too young to be vaccinated?

- Excellent immune responses to HBV vaccines given at birth.
- About 95% of infants will develop protective immune responses to HepB, Hib, DTaP, polio, and pneumococcal vaccines by 6 months of age.
- Need to be fully immunized against certain infections (Hib, pertussis, pneumococcus) by 6 months of age.

This just seems like too many shots at one time- why can't I spread them out?

Spreading put shots does not reduce stress for infant

- Study showing that two shots are not more likely to induce cortisol (as a marker for stress) than one shot.

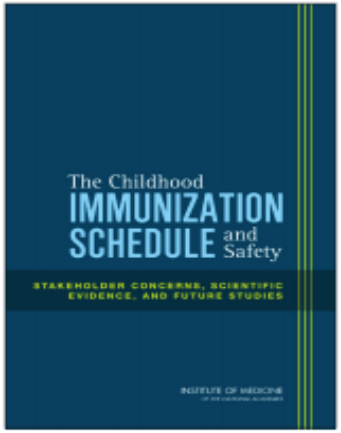
- Antigen load from vaccine is MUCH smaller than what an infant confronts every day in the environment

Ramsay DS, Lewis M. Developmental changes in infant cortisol and behavioral response to inoculation. *Child Development* 1994;65;1491-1502.

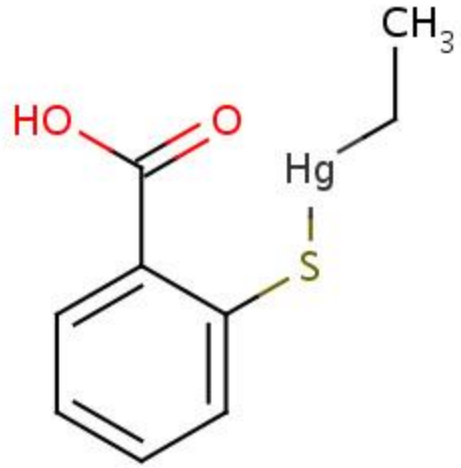
Are alternative vaccine schedules safer?

- Alternative schedules have NOT been evaluated for safety and efficacy
- IOM report supports safety of currently recommended schedule

The Childhood Immunization Schedule and Safety
Stakeholder Concerns, Scientific Evidence, and Future Studies



What about all of the additives in vaccines? Aluminum? Thimerosal?



"The alternative schedule suggests only one aluminum containing vaccine at a time in infant years. By spreading out the shots, you spread out the exposure so infants can process the aluminum without it reaching toxic levels."

Robert Sears, *The Vaccine Book*, p. 239

Aluminum and Thimerosal

- Aluminum is the third most abundant element on the earth's surface and the most abundant metal
  - Occurs naturally in teas, herbs, and spices
  - Added to foods such as leavening agents, anti-caking agents, emulsifiers, and coloring agents

- Thimerosal contains mercury (ethylmercury) which is also everywhere including food and water sources

Aluminum and mercury in food

- Aluminum and mercury are found in breast milk and infant formulas.
- By 6 months of age infants ingest:
  - 10mg aluminum from breast milk and 30mg from infant formula compared to 4mg from vaccines
  - 400µg mercury from breast milk compared to <200µg from vaccines
- Ethylmercury is readily excreted from body-breastmilk, fish and other food sources contain methylmercury which is more likely to accumulate

“The dose makes the poison”

- Aluminum can cause encephalopathy, osteomalacia and anemia in severely premature infants and patients on chronic dialysis.
- Circulating levels of aluminum in those with symptoms between 100-1,000 ng/ml.
  - Typically, children and adults have between **1-5 ng/ml** of aluminum in blood.
- Injected vaccines do not raise that level.

“The dose makes the poison”

- Thimerosal removed from vaccines in 2001
  - Now only in multidose preparations of inactivated influenza vaccines
- No evidence of mercury toxicity among children who received thimerosal-containing vaccines in multiple studies
- Everyone has small quantities heavy metals in body

Can you really be sure that vaccines don't cause autism?

Early report

Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children

A J Wakefield, S H Murch, A Anthony, J Linnell, D M Casson, M Malik, M Berelowitz, A P Dhillon, M A Thomson, P Harvey, A Valentine, S E Davies, J A Walker-Smith

Summary

Background We investigated a consecutive series of children with chronic enterocolitis and regressive developmental disorder.

Methods 12 children (mean age 6 years [range 3–10]. 11 boys) were referred to a paediatric gastroenterology unit with a history of normal development followed by loss of acquired skills, including language, together with diarrhoea and abdominal pain. Children underwent gastroenterological, neurological, and developmental assessment and review of developmental records. Ileocolonoscopy and biopsy sampling, magnetic-resonance imaging (MRI), electroencephalography (EEG), and lumbar puncture were done under sedation. Barium follow-through radiography was done where possible. Biochemical, haematological, and immunological profiles were examined.

Findings Onset of behavioural symptoms was associated, by the parents, with measles, mumps, and rubella vaccination in eight of the 12 children, with measles infection in one child, and otitis media in another. All 12 children had intestinal abnormalities, ranging from lymphoid nodular hyperplasia to aphthoid ulceration. Histology showed patchy chronic inflammation in the colon in 11 children and reactive ileal lymphoid hyperplasia in seven, but no granulomas. Behavioural disorders included autism (nine), disintegrative psychosis (one), and possible postviral or vaccinal encephalitis (two). There were no focal neurological abnormalities and MRI and EEG tests were normal. Abnormal laboratory results were significantly raised urinary methylmalonic acid compared with age-matched controls (p=0·003), low haemoglobin in four children, and a low serum IgA in four children.

Interpretation We identified associated gastrointestinal disease and developmental regression in a group of previously normal children, which was generally associated in time with possible environmental triggers.

Lancet 1998; **351:** 637–41
See Commentary page 611

Inflammatory Bowel Disease Study Group, University Departments of Medicine and Histopathology (A J Wakefield FRCS, A Anthony MB, J Linnell PHD, A P Dhillon MRCPath, S E Davies MRCPath) **and the University Departments of Paediatric Gastroenterology** (S H Murch MB, D M Casson MRCP, M Malik MRCP, M A Thomson FRCP, J A Walker-Smith FRCP,), **Child and Adolescent Psychiatry** (M Berelowitz FRCPsych), **Neurology** (P Harvey FRCP), **and Radiology** (A Valentine FRCR), **Royal Free Hospital and School of Medicine, London NW3 2QG, UK**

Correspondence to: Dr A J Wakefield

Introduction

We saw several children who, after a period of apparent normality, lost acquired skills, including communication. They all had gastrointestinal symptoms, including abdominal pain, diarrhoea, and bloating and, in some cases, food intolerance. We describe the clinical findings, and gastrointestinal features of these children.

Patients and methods

12 children, consecutively referred to the department of paediatric gastroenterology with a history of a pervasive developmental disorder with loss of acquired skills and intestinal symptoms (diarrhoea, abdominal pain, bloating and food intolerance), were investigated. All children were admitted to the ward for 1 week, accompanied by their parents.

Clinical investigations

We took histories, including details of immunisations and exposure to infectious diseases, and assessed the children. In 11 cases the history was obtained by the senior clinician (JW-S). Neurological and psychiatric assessments were done by consultant staff (PH, MB) with HMS-4 criteria.[1] Developmental histories included a review of prospective developmental records from parents, health visitors, and general practitioners. Four children did not undergo psychiatric assessment in hospital; all had been assessed professionally elsewhere, so these assessments were used as the basis for their behavioural diagnosis.

After bowel preparation, ileocolonoscopy was performed by SHM or MAT under sedation with midazolam and pethidine. Paired frozen and formalin-fixed mucosal biopsy samples were taken from the terminal ileum; ascending, transverse, descending, and sigmoid colons, and from the rectum. The procedure was recorded by video or still images, and were compared with images of the previous seven consecutive paediatric colonoscopies (four normal colonoscopies and three on children with ulcerative colitis), in which the physician reported normal appearances in the terminal ileum. Barium follow-through radiography was possible in some cases.

Also under sedation, cerebral magnetic-resonance imaging (MRI), electroencephalography (EEG) including visual, brain stem auditory, and sensory evoked potentials (where compliance made these possible), and lumbar puncture were done.

Laboratory investigations

Thyroid function, serum long-chain fatty acids, and cerebrospinal-fluid lactate were measured to exclude known causes of childhood neurodegenerative disease. Urinary methylmalonic acid was measured in random urine samples from eight of the 12 children and 14 age-matched and sex-matched normal controls, by a modification of a technique described previously.[1] Chromatograms were scanned digitally on computer, to analyse the methylmalonic-acid zones from cases and controls. Urinary methylmalonic-acid concentrations in patients and controls were compared by a two-sample *t* test. Urinary creatinine was estimated by routine spectrophotometric assay.

Children were screened for antiendomyseal antibodies and boys were screened for fragile-X if this had not been done

Vaccines and autism

- Sparked by 1998 publication in *The Lancet* by Wakefield, etal linking autism and MMR
  - Vaccine causes bowel inflammation letting brain-damaging proteins circulate
- Study retracted and findings refuted by multiple studies that have shown no evidence of this link[1]

- Concern shifted to thimerosal and mercury
- No link found in multiple studies AND even after thimerosal removed from vaccines, autism rates have increased

Dales, etal. JAMA 2001; D'Souza etal. Pediatrics 2006; Farrington, etal. Vaccine 2001; Madsen etal, NEJM 2002, Taylor, etal. BMJ 2002; Taylor, etal. Lancet 1999.

Has evidence removed concern?

Vaxxed: From Cover-Up to Catastrophe (2016)

Why do parents refuse or delay HPV vaccines?

Reasons for not vaccinating (females), NIS-Teen 2008-13[1]

	2008	2009	2010	2013
Not recommended	10.8%	8.5%	9.0%	13%
Not needed / not necessary	14.4%	15.5%	17.4%	14.7%
Lack of knowledge	15.8%	15.7%	10.2%	15.5%
Safety concerns	**4.5%**	**7.7%**	**16.4%**	**14.2%**
Not sexually active	14.1%	12.3%	11.1%	11.3%

[1]Darden P, etal. Pediatrics 2013; MMWR 2014

My child doesn't need HPV vaccine yet

- **No benefit in waiting to initiate or complete the HPV vaccine series…early vaccination ensures protection before exposure**

- HPV vaccines work most effectively when given prior to exposure

- No matter when your child becomes sexually active, young adults are at highest risk of HPV infection

- HPV vaccines give strongest immune response in younger adolescents

- HPV vaccination can be administered as part of the adolescent vaccine platform

[1]Pedersen C, JAH 2007, Reisinger KS etal, PIDJ 2007

Addressing parental concerns: Let's talk about sex?

- The "HPV vaccine is cancer prevention" message resonates strongly with parents

- HPV vaccination has not been associated with increase in sexual activity

I've heard that HPV vaccines haven't been studied enough and aren't safe

- HPV vaccine was tested for 7 years in about 30,000 women pre-licensure.

- Post-licensure, the vaccine has been tested in studies of more than 1 million people
  - GBS, seizures, syncope, appendicitis, stroke, VTE, autoimmune disorders, anaphylaxis, or congenital abnormalities.

- Known side effects
  - 1 in 60 will develop mild fever
  - 1 in 30 will develop discomfort around injection site

- Only syncope (0.1%) was found to correlate with vaccine administration

ADDRESSING HESITANCY

Communication and Policy

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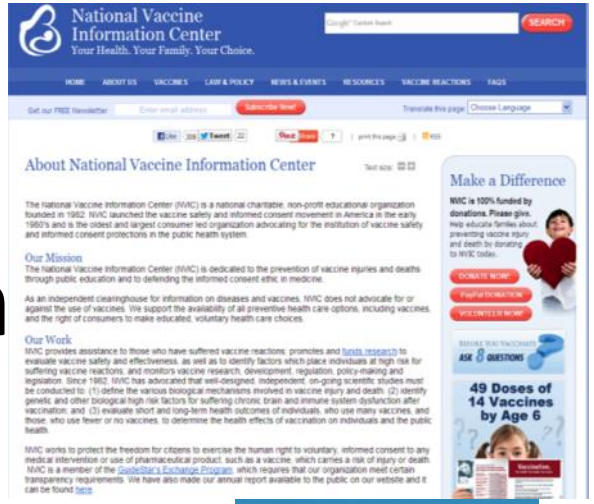
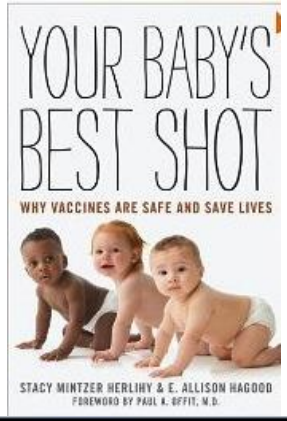
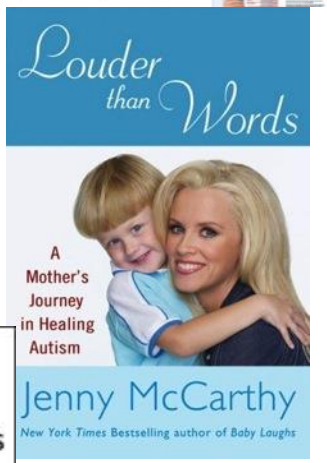
General Principles: A Multi-Faceted Approach

- Majority of parents look to their health care provider for reliable information and recommendations regarding vaccines
- Health care providers may also have questions and concerns about vaccines
- Parents also receive information from a wide range of sources
- Parents want to make the best decision to keep their child safe and healthy
  - Health care providers also want to keep children safe and healthy

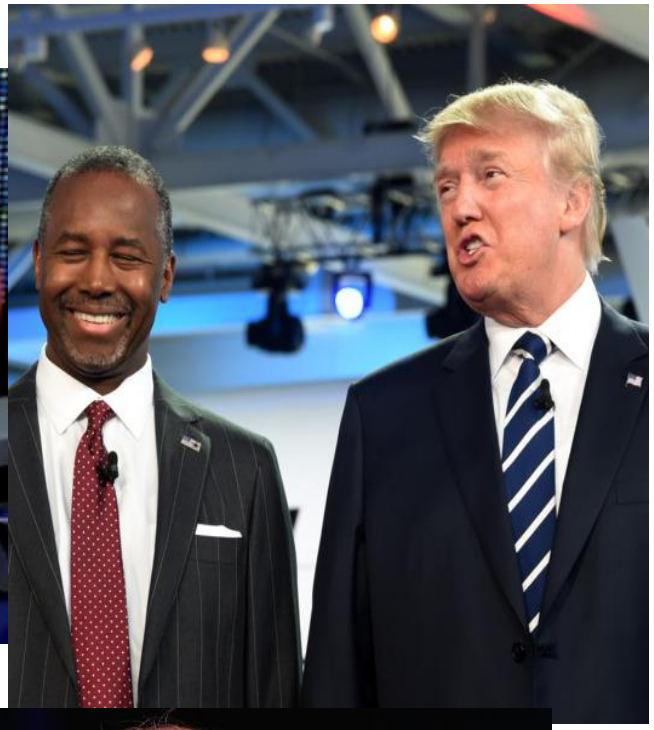
Provider recommendation is one the most important predictors of vaccine acceptance







Media, Politics and Vaccines



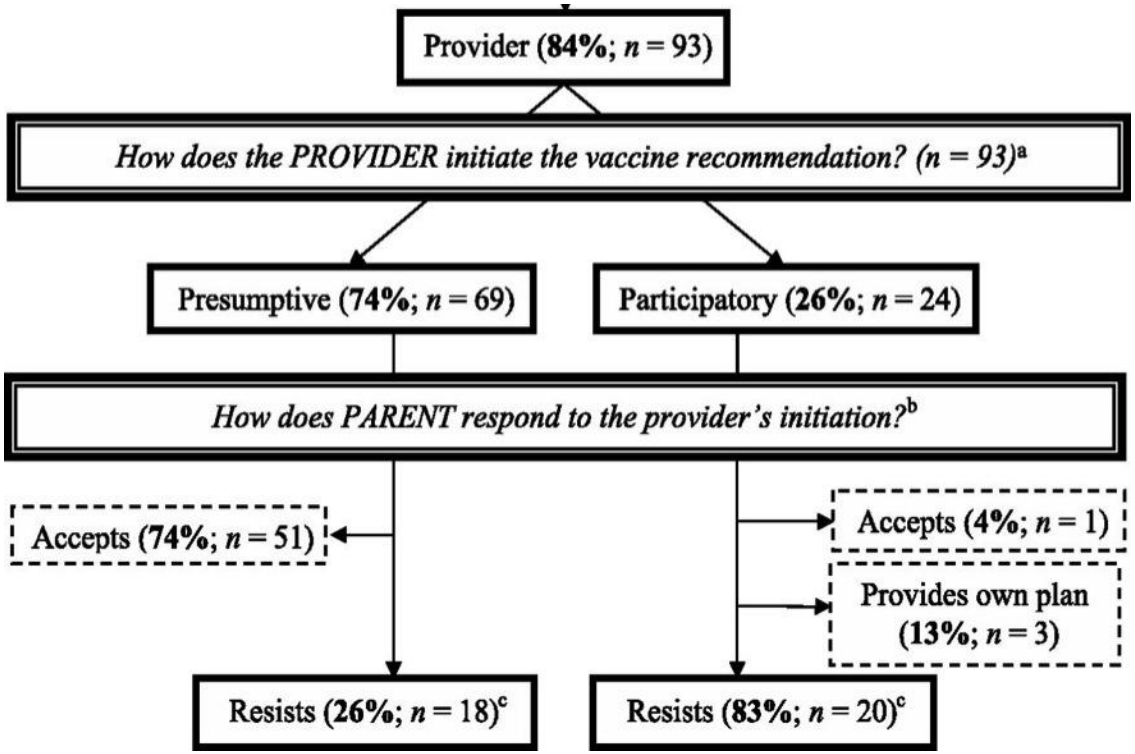
Provider recommendation matters

- Be proactive
- Know the disease
- Find a common ground
- Use numbers to communicate risk and provide perspective
- Use personal stories
- Know the vaccine- acknowledge known side effects but also emphasize evidence supporting safety and benefit
- Know about additional resources
- Make recommendation strong and consistent

Healy CM, etal Pediatrics 2011;127 Suppl 1:S127-33; Offit PA, Coffin SE. Vaccine 2003;22:1-6; Turnbull AE. Health Commun 2011;26:775-6.; Macdonald NE, etal.. Biologicals 2011.; Daley MF, etal. Sci Am 2011;305:32, 4.

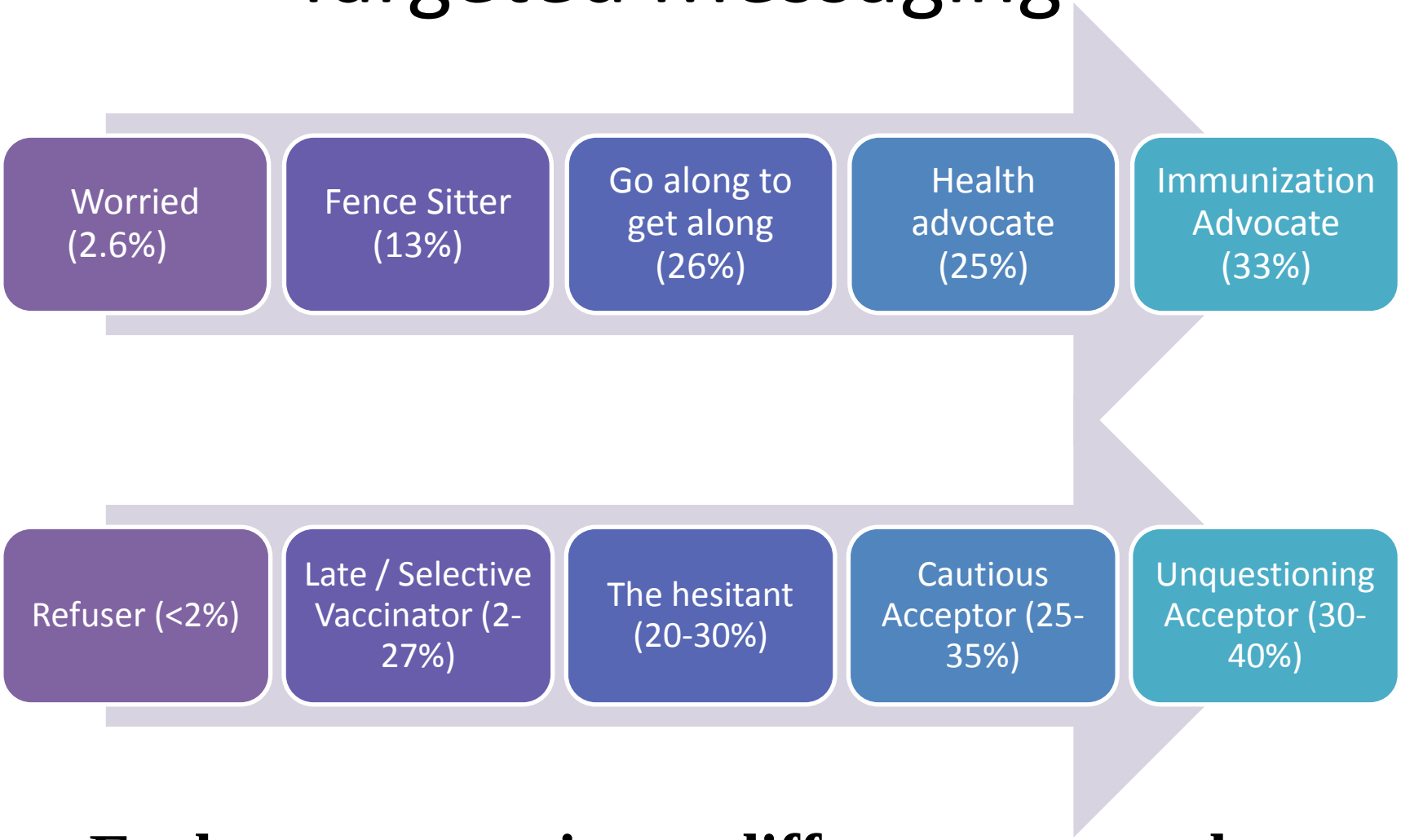
A Strong Recommendation Can Drive Acceptance

- Parents whose provider used a participatory approach were significantly more likely to resist vaccine recommendation compared to a presumptive approach



Opel DJ, etal. Pediatrics 2013

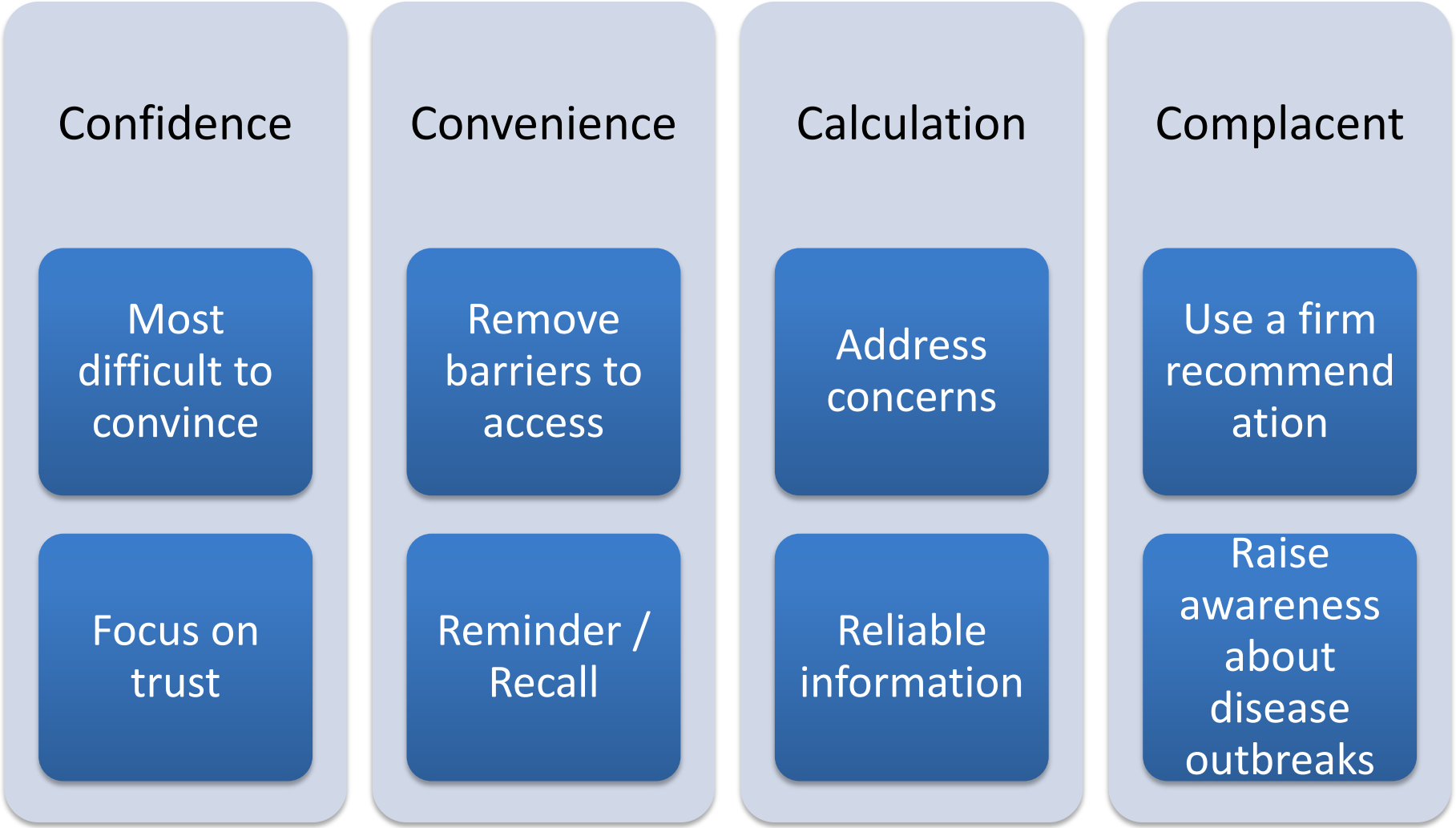
Targeted Messaging



Each group requires a different approach.

Gust DA, etal. Am J Health Behavior, 2005,29; Leask J, etal. BMC Pediatrics. 2012, 12.

4 approaches for different types of hesitancy



Betsch C, etal , Policy Insights from the Behav Brain Sci. 2015, 2(1).

Addressing Concerns: Dr. Bob's Message

- Recommended schedule exposes infants to too much aluminum
- Vaccine preventable diseases (VPDs) are not that serious
- It is okay to hide in the herd
- Natural infection is better than vaccination
- Suggests vaccines cause chronic diseases
- Vaccine safety testing is insufficient

- Everyone has small quantities heavy metals in body → injected vaccines do not raise level
- Natural infection comes at risk of disease that could be severe
- Herd immunity has eroded due to delay and refusal
- Misrepresents risk
- Clear evidence that recommended vaccines are NOT associated with chronic diseases such as diabetes, eczema, or MS

Offit P, Moser C. Pediatrics 2009

Addressing Concerns: Dr. Bob's Message

- Recommended schedule exposes infants to too much aluminum
- Vaccine preventable diseases (VPDs) are not that serious
- It is okay to hide in the herd
- Natural infection is better than vaccination
- Suggests vaccines cause chronic diseases
- Vaccine safety testing is insufficient

- Everyone has small quantities heavy metals in body → injected vaccines do not raise levels
- Natural infection comes at risk of disease that could be severe
- Herd immunity has eroded due to delay and refusal
- Misrepresents risk of VPDs
- Clear evidence that recommended vaccines are NOT associated with chronic diseases such as diabetes, eczema, or MS

Offit P, Moser C. Pediatrics 2009

What communication strategies do providers use?

Strategy	Always / Often %	Very / Somewhat Effective%
Tell parents you immunize your own kids on schedule	66	**20 / 64**
Explain risk of deviating from schedule	68	9 / 55
Tell parents delaying vaccines is against your recommendation	66	7 / 52
Talk about outbreaks	60	**14 / 58**
Explain that not vaccinating puts other people at risk	49	2 / 32
Involve parents in vaccine administration (hold child for comfort)	49	14 / 36
Refer to another provider	3	4 / 12

Kempe A, Pediatrics 2015

Communication: Is Providing Information Effective?

- **Different types of information about measles did not change beliefs about MMR and side effects or vaccines and autism**
  - Parents who received a narrative about measles disease were more likely to report belief that MMR causes significant side effects
  - Parents who saw images of a child with measles were more likely to report agreement with the statement that vaccines cause autism

"Arguing unproductively about factual misconceptions only serves to further polarize views. It might feel good to rant and rave, but people rarely change their minds because someone called them stupid or wrong."

-HO Witteman, Pediatrics 136 (2), 2015.

Nyhan B, etal. Pediatrics 2014

Communication: It is both WHAT and HOW

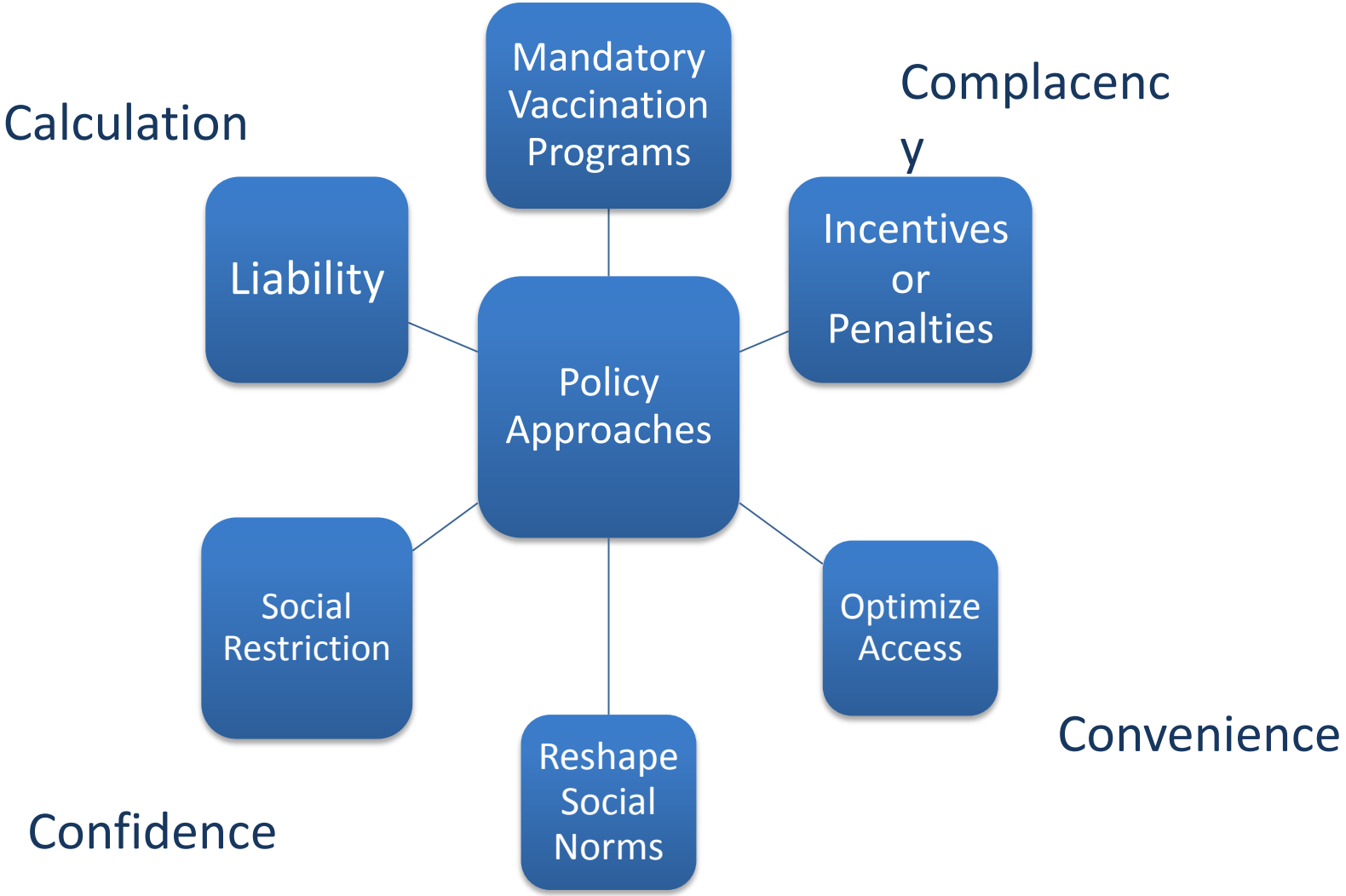
- In a pilot study among 77 parents of young children, more parents who received a tailored message reported positive MMR vaccine intentions compared to parents who received an untailored message
  - Name
  - Content
  - Experience
  - Image

Hendrix, etal. PEDIATRICS, 2014; 134(3)

Public health policy and vaccine acceptance

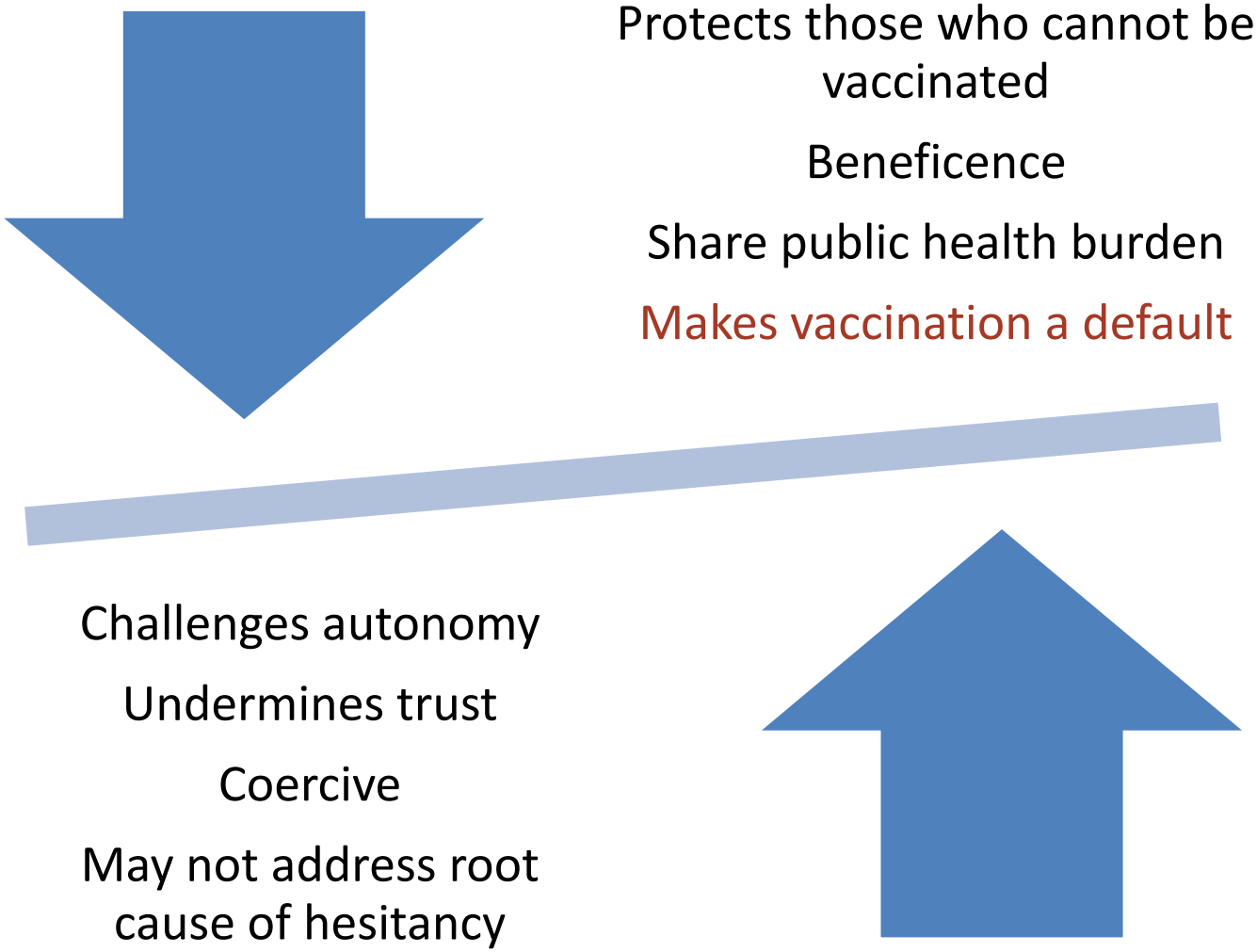
immunizations 411
LINK. LOGIN. LEARN.
hosted by the Missouri Department of Health and Senior Services' Bureau of Immunization Assessment and Assurance
www.health.mo.gov/immunizations
webinar series

How can policy influence vaccine decision-making



How can policy influence vaccine decision-making

Mandatory Vaccination: Individual Choice and Public Good



Mandatory Vaccination and Constitutional Law

- *Jacobson v. Massachusetts* (1905)
  - Smallpox outbreak → require vaccine or $5 fine

"The liberty secured by the Constitution of the United States…does not import an absolute right…to be wholly freed from restraint. There are **manifold restraints to which every person is necessarily subject for the common good**…."

- *Prince v. Massachusetts* (1944)
  - Jehovah's Witness claims right to have young children distribute pamphlets → religious freedom did not trump child labor laws

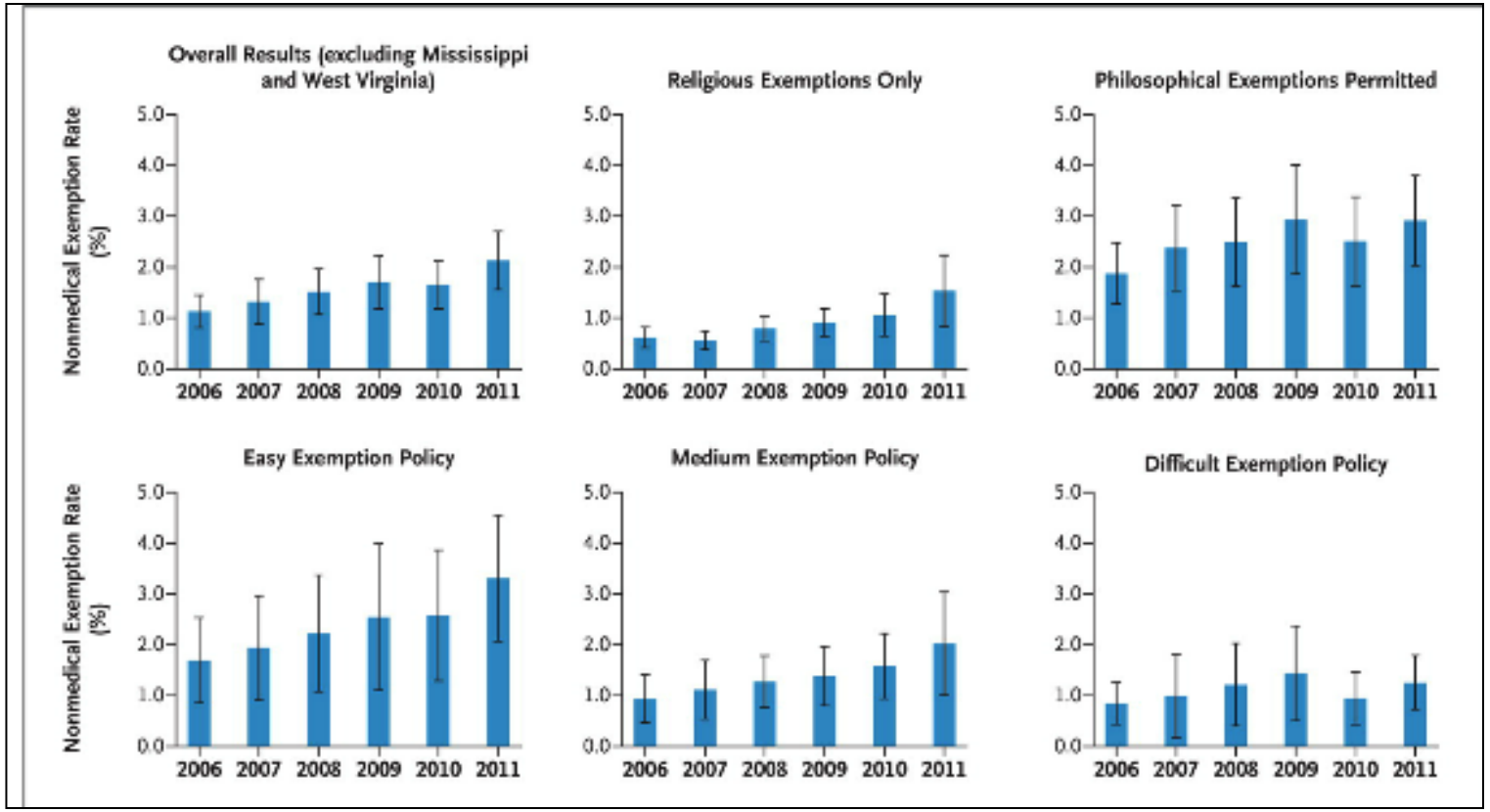
"[A parent] cannot claim freedom from compulsory vaccination for the child any more than for himself on religious grounds. The **right to practice religion freely does not include the liberty to expose the community to infectious disease**…'

Mandatory vaccination as state policy

- All 50 states in U.S. have school entry requirements for childhood vaccines but states may allow exemptions
  - First amendment
- 47 states allow religious exemptions
  - In 2013, CDC identifies about 30,000 children whose parents had chosen not to vaccinate for religious reasons
- 17 states allow personal belief / philosophical exemptions
  - Ease of obtaining an exemption significantly differs across states

How do Exemption Policies Influence Hesitancy?

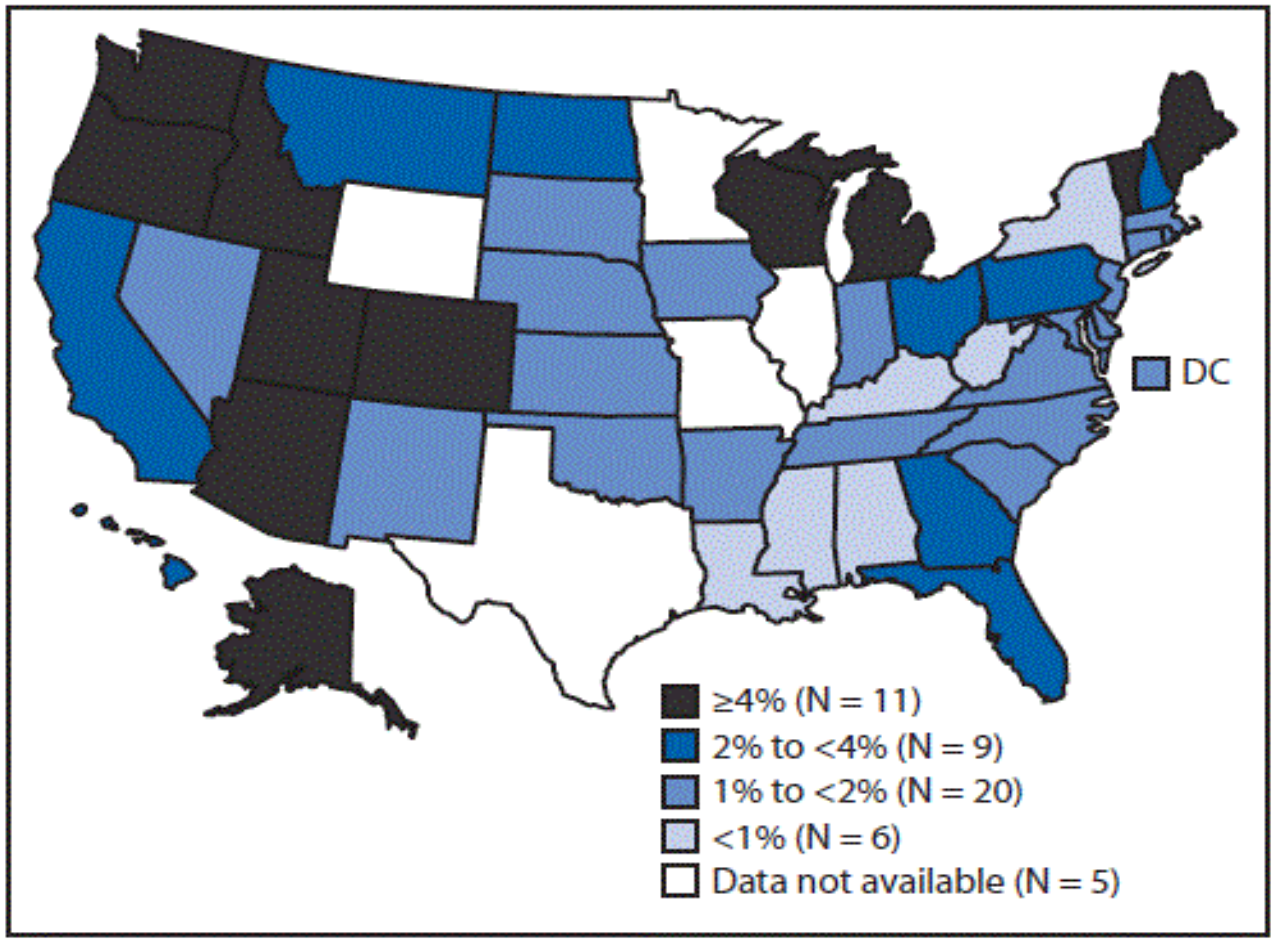
Ease of refusal can influence likelihood of refusal



Between 2009-12, none of the 31 bills introduced in 18 states to expand exemptions passed; 3 of 5 to restrict exemptions did pass

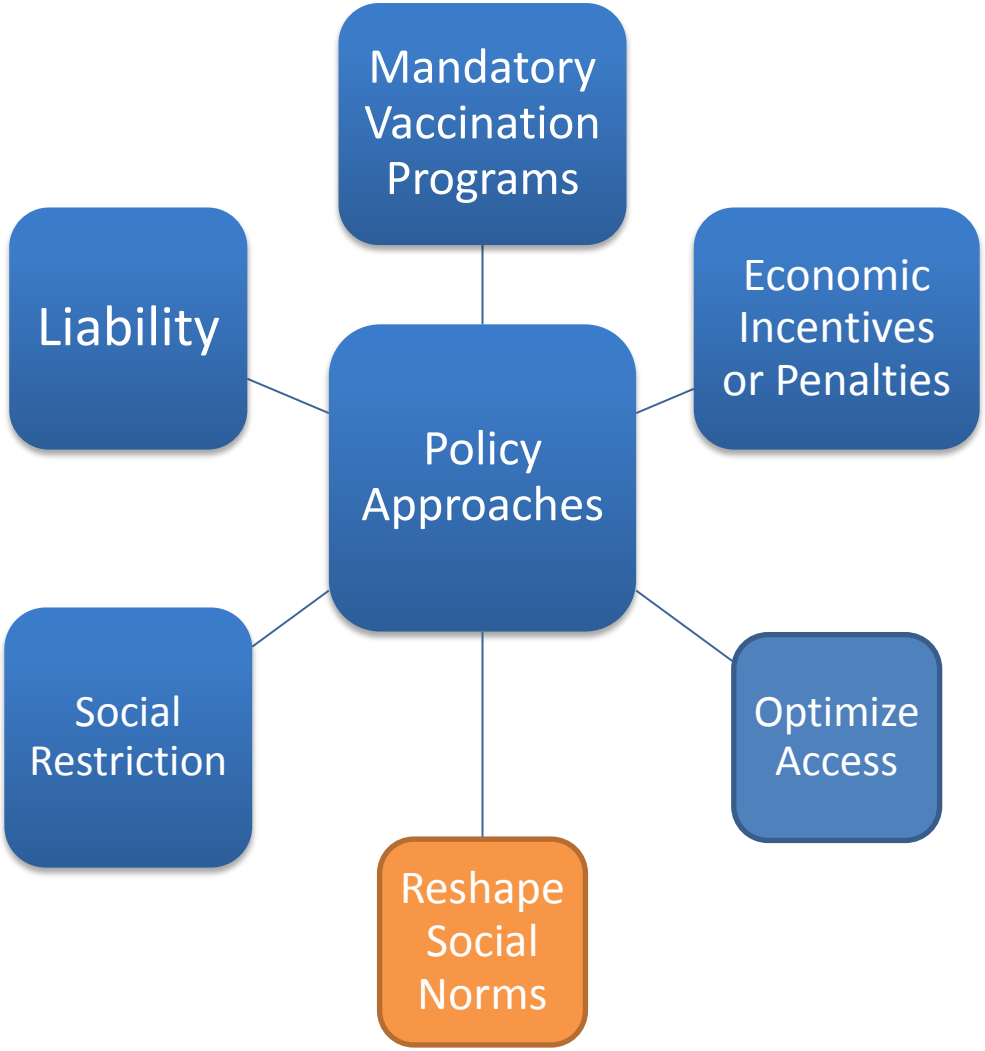
Omer SB, etal. NEJM 2012; 367; Omer SB JAMAPediatrics 2014;311(6).

Vaccine Exemption Rates for Children Entering Kindergarten: 2014-2015 School Year



MMWR August 28, 2015 / 64(33)

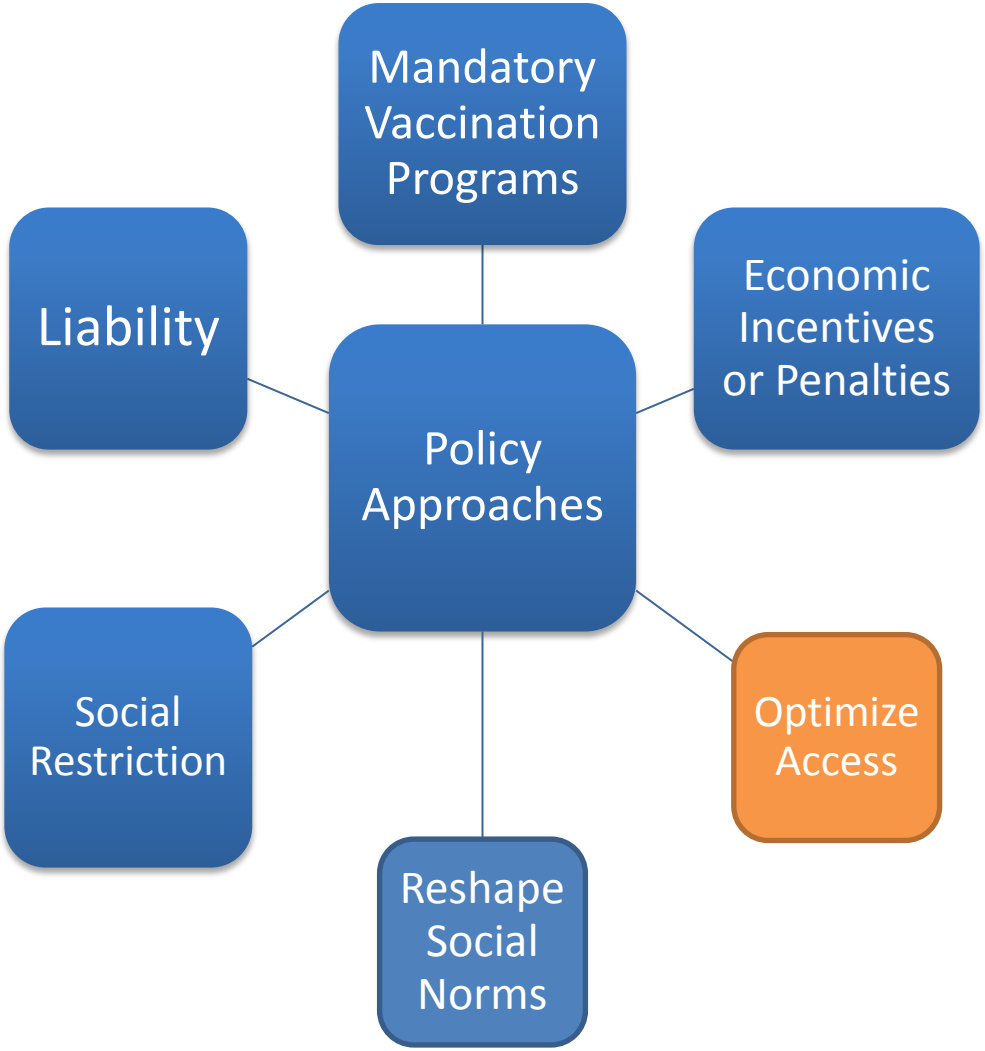
How can policy influence vaccine decision-making



Public Policy to Influence Social Norms: Social Marketing

- Social marketing principles: Product, Price, Place, Promotion to change how vaccines are valued

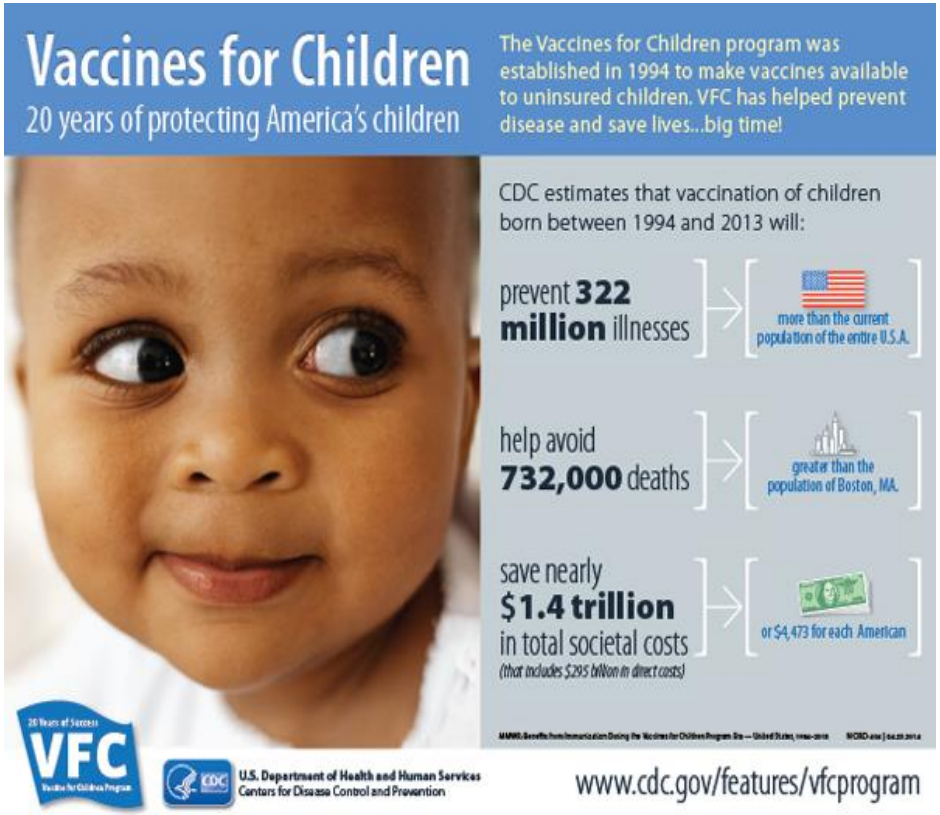
How can policy influence vaccine decision-making



Removing system and cost barriers to improve access

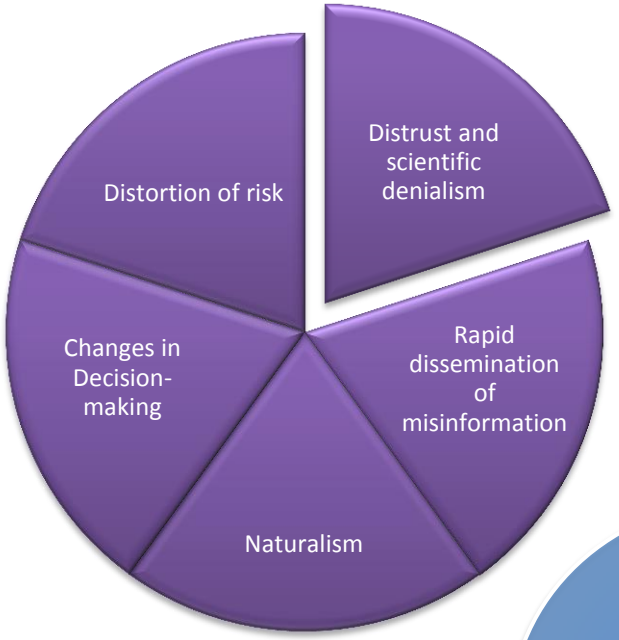
2014/2015 School-Based Immunization Schedule

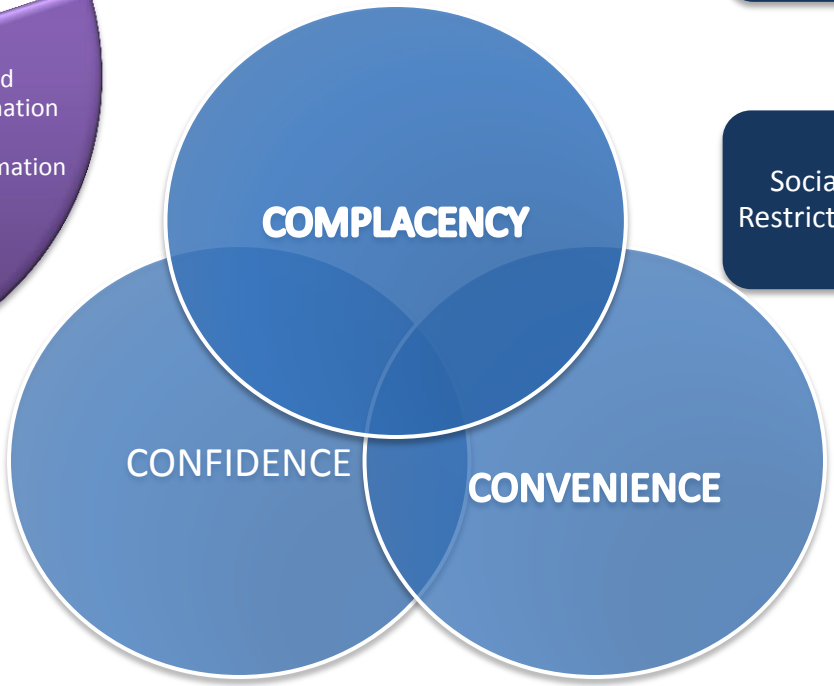
Activity	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Grade 7 Hepatitis B	Dose 1	Dose 1					Dose 2	Dose 2	Dose 2
Grade 7 Menactra				Dose 1	Dose 1				
Grade 8 HPV	Dose 1	Dose 1		Dose 2	Dose 2		Dose 3	Dose 3	Dose 3



- http://www.hkpr.on.ca/portals/0/Images%20-%20Youth/immunization_sked.jpg

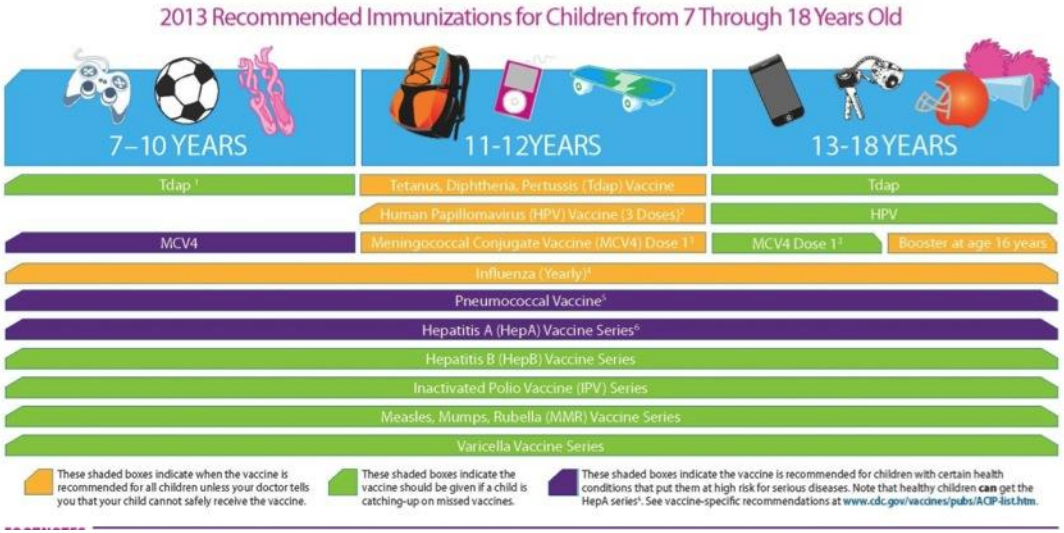
Vaccine hesitancy is a complex challenge that will require a multifaceted approach





A strong consistent message is crucial

Resources


2013 Recommended Immunizations for Children from 7 Through 18 Years Old
7–10 YEARS
11-12YEARS
13-18YEARS
Tdap [1]
Tetanus, Diphtheria, Pertussis (Tdap) Vaccine
Tdap
Human Papillomavirus (HPV) Vaccine (3 Doses)[2]
HPV
MCV4
Meningococcal Conjugate Vaccine (MCV4) Dose 1[3]
MCV4 Dose 1[3]
Booster at age 16 years
Influenza (Yearly)[4]
Pneumococcal Vaccine[5]
Hepatitis A (HepA) Vaccine Series[6]
Hepatitis B (HepB) Vaccine Series
Inactivated Polio Vaccine (IPV) Series
Measles, Mumps, Rubella (MMR) Vaccine Series
Varicella Vaccine Series
These shaded boxes indicate when the vaccine is recommended for all children unless your doctor tells you that your child cannot safely receive the vaccine.
These shaded boxes indicate the vaccine should be given if a child is catching-up on missed vaccines.
These shaded boxes indicate the vaccine is recommended for children with certain health conditions that put them at high risk for serious diseases. Note that healthy children can get the HepA series[6]. See vaccine-specific recommendations at www.cdc.gov/vaccines/pubs/ACIP-list.htm.


Immunization
Communicating with Families
Despite vaccines' success at preventing disease, parents still question the necessity of vaccinating. There are many reasons that parents state for not vaccinating, as well as different ways to build confidence during office conversations.
Vaccine-Hesitant Parents
Learn methods and strategies for talking with vaccine-hesitant parents.
Common Parental Concerns
Find sample responses to and resources for common parental concerns.


Q&A
Volume 7, Fall 2012
The Facts About Childhood Vaccines
The Children's Hospital of Philadelphia
VACCINE EDUCATION CENTER


vaccine safety
resources

Resources

- Offit PA, Moser, CA. *Vaccines and Your Child: What Every Parent Should Know.* New York, NY: Columbia University Press; 2011
- Vaccine Education Center at The Children's Hospital of Philadelphia (http://www.chop.edu/service/vaccine-education-center/home.html)
- National Network for Immunization Information (www.immunizationinfo.org)
- Vaccine Safety Datalink Project (www.cdc.gov/od/science/iso/vsd)
- Centers for Disease Control and Prevention: http://www.cdc.gov/vaccines/vpd-vac/hpv/default.htm#clinical
- Immunization Action Coalition: http://www.immunize.org
- Every Child By Two: http://www.ecbt.org
- Measles and Rubella Initiative: http://www.measlesrubellainitiative.org/
- Interagency Autism Coordinating Center (IACC): http://iacc.hhs.gov/index.shtml
- World Health Organization (WHO): http://www.who.int/immunization/diseases/measles/en/

Thank you!

“We’re Immunized!” Parents of Kids with Infectious Diseases “I’m Immunized” Campaign