

THE ETHICAL  
IMPLICATIONS OF  
VACCINE HESITANCY

**aapa**  
**2020**

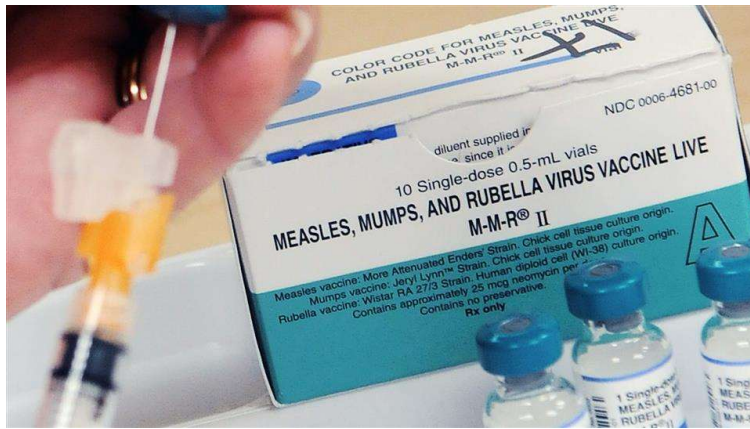
Rachel La Costa, MPAS, PA-C  
UC San Diego Health  
Hematology/Oncology/BMT

## DISCLOSURES

I have no disclosures.

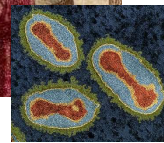
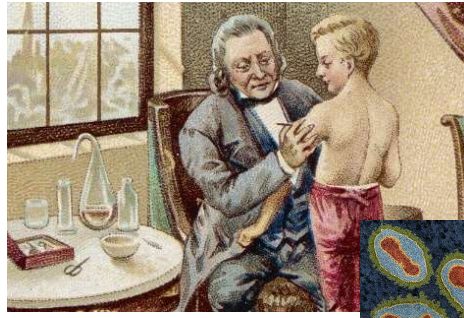
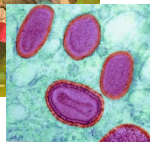
<h1>OBJECTIVES</h1>	<p>Discuss common motivations for vaccine hesitancy.</p> <p>Identify the ethical principles involved in vaccine administration and hesitancy.</p> <p>Formulate an ethical response that the PA can utilize to respond to vaccine-hesitant parents.</p>
---------------------	--

# INTRODUCTION



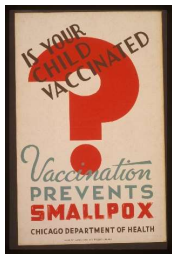
# VACCINE HISTORY

1796: Edward Jenner – Smallpox vaccine



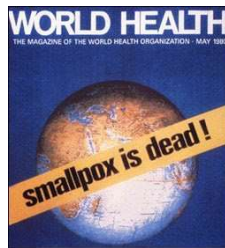
# VACCINE SUCCESS

## SMALLPOX



1796  
Jenner  
Smallpox  
Vaccine

1972  
Smallpox  
Vaccine  
**discontinued**



1980  
Smallpox  
declared  
**eradicated**  
by the  
WHO

## POLIO



1955  
Salk Polio  
Vaccine



1979 Last  
case of polio  
in the U.S.

<https://www.historyofvaccines.org/timeline/all>  
<https://www.chop.edu/centers-programs/vaccine-education-center/vaccine-history/developments-by-year>

**Table 1** Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2020

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

Vaccine	Birth	1 mo	2 mo	4 mo	6 mo	9 mo	12 mo	15 mo	18 mo	19-23 mo	2-3 yrs	4-6 yrs	7-10 yrs	11-12 yrs	13-15 yrs	16 yrs	17-18 yrs	
Hepatitis B (HepB)	1 <sup>st</sup> dose	2 <sup>nd</sup> dose																
Rotavirus (RV): RV1 (2-dose series), RV2 (3-dose series)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	See Notes													
Diphtheria, tetanus, acellular pertussis (DTaP <7 yrs)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	3 <sup>rd</sup> dose					4 <sup>th</sup> dose		5 <sup>th</sup> dose						
Haemophilus influenzae type b (Hib)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	See Notes					3 <sup>rd</sup> or 4 <sup>th</sup> dose								
Pneumococcal conjugate (PCV13)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	3 <sup>rd</sup> dose					4 <sup>th</sup> dose								
Inactivated poliovirus (IPV <18 yrs)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose						3 <sup>rd</sup> dose			4 <sup>th</sup> dose					
Influenza (IV)										Annual vaccination 1 or 2 doses							Annual vaccination 1 dose only	
Influenza (IAIV)																		Annual vaccination 1 or 2 doses
Measles, mumps, rubella (MMR)						See Notes				1 <sup>st</sup> dose								2 <sup>nd</sup> dose
Varicella (VAR)										1 <sup>st</sup> dose								2 <sup>nd</sup> dose
Hepatitis A (HepA)						See Notes				2-dose series, See Notes								
Tetanus, diphtheria, acellular pertussis (Tdap >7 yrs)																		Tdap
Human papillomavirus (HPV)																		See Notes

# CURRENT VACCINATION RECOMMENDATIONS

CDC + AAFP + AAP  
 = cdc.gov


Updated annually

16 unique diseases

Birth to age 18  
 = Modifications, catch up schedule

Adult vaccines

Special vaccines (i.e. travel)



Download "CDC Vaccine Schedules" free for iOS and Android devices.

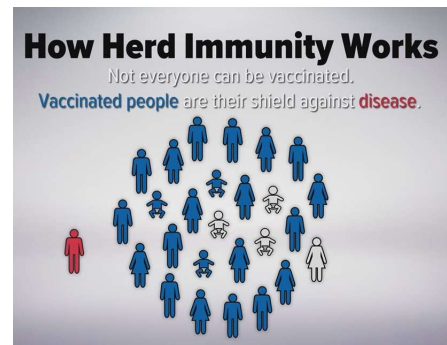
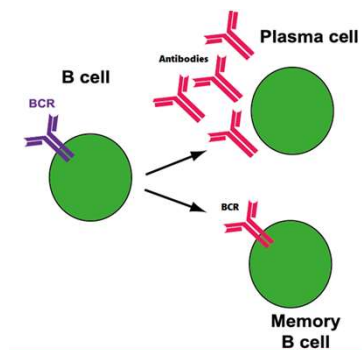
## ACTIVE & PASSIVE IMMUNITY

### Why?

- Decrease incidence & transmission of disease → decrease in morbidity & mortality

### How?

- Active immunity
- Passive immunity
  - High risk populations





## VACCINE COMPLIANCE

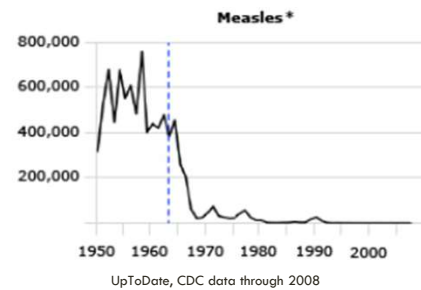
### Goal compliance rates?

- Measles: requires >96% compliance

Current MMR vaccine compliance (CDC, 2017): **91%**

### Measles

- Declared “eliminated” in the U.S. in 2000
- **Measles outbreaks – clusters**



CDC, MMWR (2017)  
 Phadke et al., JAMA (2016)  
 Boom & Healy, UpToDate (2019)

## 2019 MEASLES OUTBREAK IN NYC

654 cases were confirmed in NYC

▪ >70% of cases were unvaccinated

Clusters in Brooklyn

Mandatory vaccination in affected neighborhoods


Gov. Cuomo revoked religious exemption

NY Health Department Educational Outreach

Health  
New York City declares end to largest  
measles outbreak in nearly 30 years



<https://www.washingtonpost.com/health/2019/09/03/new-york-city-declares-end-largest-measles-outbreak-nearly-years/>



**The Anti-Vaccination Society of America**  
OTHERWISE

An Association of "half-mad", "misguided" people, who write, and toil, and dream, of a time to come, when it shall be lawful to retain intact, the pure body Mother Nature gave, sends GREETING to a "suspect". "Liberty cannot be given, it must be taken."

**You are Invited to Join Us**

Frank D Blue, Sec'y,  
Terre Haute, Ind.     **1902**     Hon L H Piehn,  
President

✉ Enclose 25c for certificate of membership.

**CONVINCING FACTS!**

THOSE WHO DISBELIEVE IN VACCINATION SHOULD  
PONDER THE FOLLOWING FIGURES ISSUED BY  
THE HEALTH COMMITTEE OF GLOUCESTER:

TOTAL ADMISSIONS TO HOSPITAL FOR SMALLPOX				350
UNVACCINATED	-	-	-	319
VACCINATED, BUT SO LONG AGO AS TO BE UNPROTECTED	-	-	-	18
VACCINATED DURING INCUBATION PERIOD OF DISEASE	-	-	-	13

'THE TIMES,' JULY 25, 1923.

# "ANTI-VACCINE"

“ANTI-VACCINE” TERMINOLOGY

**Vaccine Hesitancy**  
COMMON

VACCINE REFUSAL  
uncommon

MacDonald, Vaccine (2015)

## VACCINE SOCIOECONOMICS

### VACCINE REFUSAL/UNVACCINATED

∅ vaccines

White

College-educated parents

Annual income >\$75,000

\*Clustered geographically

States with philosophical vaccine exemptions

Express concerns about vaccine safety

### UNDER-VACCINATED

Missing full series or booster vaccines

Black

Parents without college education

At the poverty level

Rural areas

Uninsured or Medicaid

Smith et al., *Pediatrics* (2004)  
CDC, *MMWR* (2017)

# VACCINE DECISIONS

C O M P L E X

\* = child is fully vaccinated

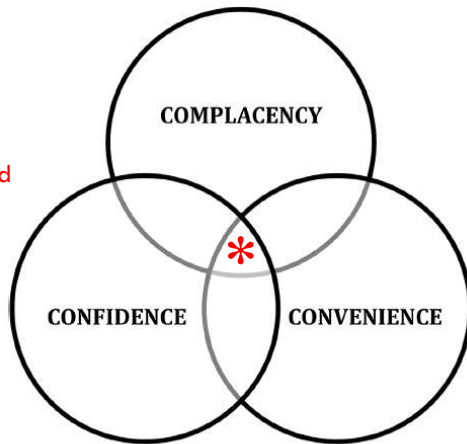
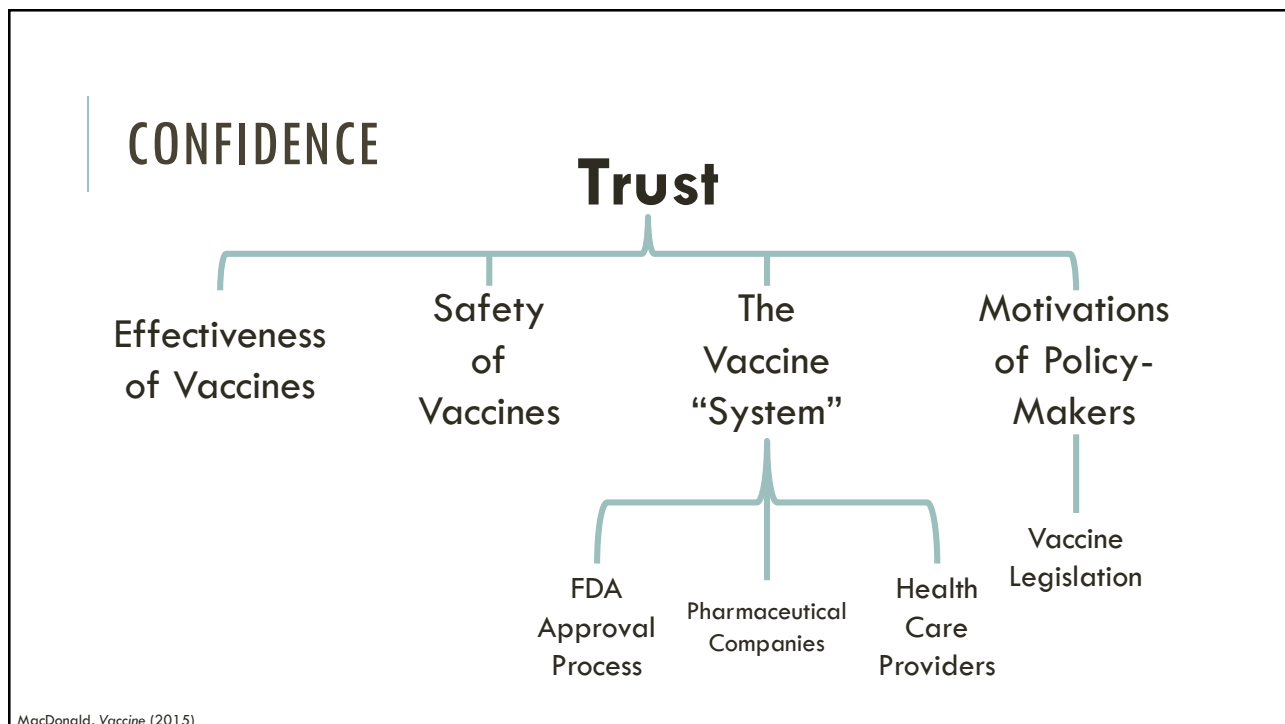
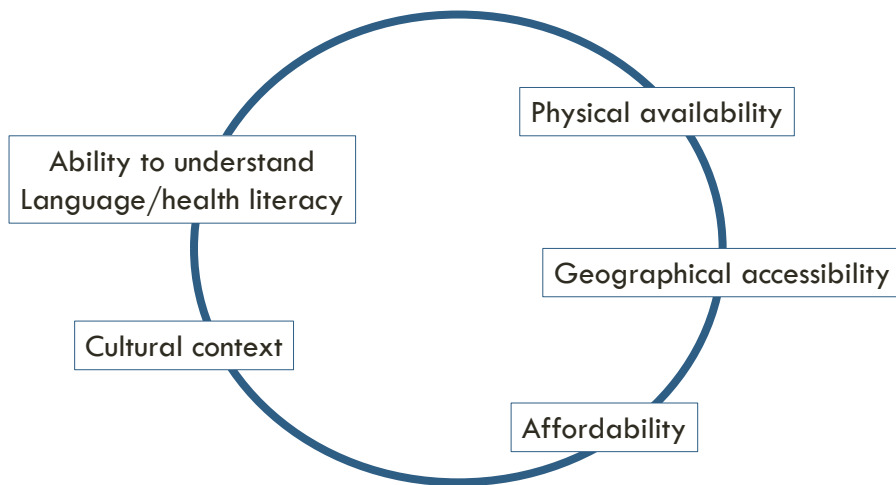


Fig. 2. "Three Cs" model of vaccine hesitancy.

MacDonald, Vaccine (2015)



# CONVENIENCE



MacDonald, Vaccine (2015)



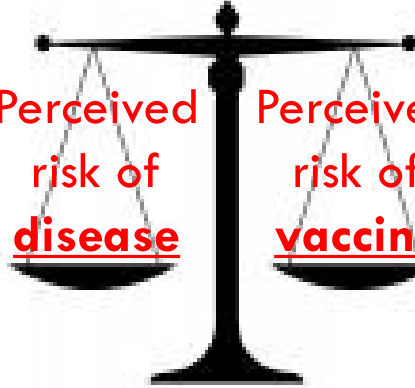
# COMPLACENCY



MacDonald, Vaccine (2015)



Perceived risk of disease      Perceived risk of vaccine



THE LANCET 1998

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

**RETRACTED**

Dr. Al Mollerach FRCS (C), Dr. Stuart ME N., A. Anthony MB B, J. Linnell PhD A, M. Caspary MRCGP A, H. Webb MRCGP A, H. Borekowitz FRCPsych A, M. Dhillon MRCPsych A, M. Thomson FRCP A, P. Shanley FRCP A, A. Valente FRCP A, S. Doran MRCPsych A, J. Walker-Smith FRCP A

**Summary**

**Background**  
We investigated a consecutive series of children with ileal-lymphoid-nodular hyperplasia and irregularly distributed colitis.

**Methods**  
12 children (mean age 6 years, range 3-10, 11 boys) were referred to a pediatric 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. Neurochemistry and sleep recording, magnetic resonance tomography (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.

# VACCINE DECISIONS

C O M P L E X

\* = child is fully vaccinated

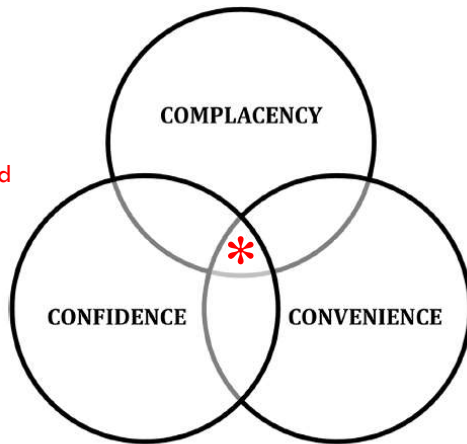


Fig. 2. "Three Cs" model of vaccine hesitancy.

MacDonald, Vaccine (2015)

# VACCINE ETHICS

Why are vaccine ethics unique?



Adapted from Hendrix et al., AJPH (2016)

<p><b>ETHICAL PRINCIPLES</b></p> <p>Autonomy</p> <p>Beneficence</p> <p>Non-maleficence</p> <p>Justice</p> <p>Utilitarianism</p>	<hr/> <p><b>The Belmont Report</b></p> <p><b>Ethical Principles and Guidelines for the Protection of Human Subjects of Research</b></p> <hr/> <p>The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research</p>
--	---

# AUTONOMY

Definition: Respect for persons

Decision-maker = parent(s)

Informed consent

- VIS
- 47 languages

Children circumventing parents' wishes

- Ethan Linderberger, 18 y/o Ohio teenager



cdc.gov

**VACCINE INFORMATION STATEMENT**

**DTaP (Diphtheria, Tetanus, Pertussis) Vaccine: What You Need to Know**

Many Vaccine Information Statements are available in Spanish and other languages. See [www.imz.unz.org/la](http://www.imz.unz.org/la)  
 Mucha de información sobre vacunas está disponible en español y en muchos otros idiomas. Visite [www.imz.unz.org/la](http://www.imz.unz.org/la)

**1 Why get vaccinated?**

DTaP vaccine can help protect your child from diphtheria, tetanus, and pertussis.

- **DIPHtheria (D)** can cause breathing problems, paralysis, and heart failure. Before vaccines, diphtheria killed tens of thousands of children every year in the United States.
- **TETANUS (T)** causes painful tightening of the muscles. It can cause "locking" of the jaw so you cannot open your mouth or swallow. About 1 person out of 5 who get tetanus die.
- **PERTUSSIS (aP)**, also known as whooping cough, causes coughing spells so bad that infants and children can't eat, drink, or breathe. It can cause pneumonia, seizures, brain damage, and even death. Most children who are vaccinated get these diseases.

**2 DTaP vaccine**

Children should usually get 5 doses of each of the following:

- 2 months
- 4 months
- 6 months
- 15-18 months
- 4-6 years

DTaP may be given at the same time as other vaccines. Also, sometimes a child can get DTaP together with one or more other vaccines.

**3 Some children should not get DTaP vaccine or should wait**

DTaP is only for children younger than 7 years old. DTaP vaccine is not appropriate for everyone—a small number of children should receive a different vaccine that contains only diphtheria and tetanus instead of DTaP.

Tell your health care provider if your child:

- Has had an allergic reaction after a previous dose of DTaP, or has any severe, life-threatening allergic reaction.

**4 Risks of a vaccine reaction**

- Redness, soreness, swelling, and tenderness where the shot is given are common after DTaP.
- Fever, fussiness, tiredness, poor appetite, and vomiting sometimes happen 1 to 3 days after DTaP vaccination.
- More serious reactions, such as seizures, non-stop crying for 3 hours or more, or high fever (over 105°F) after DTaP vaccination happen much less often. Rarely, the vaccine is followed by swelling of the entire arm or leg, especially in older children when they receive their fourth or fifth dose.
- Long-term seizures, coma, lowered consciousness, or permanent brain damage happen extremely rarely after DTaP vaccination.

As with any medicine, there is a very remote chance of a vaccine causing a severe allergic reaction, other serious injury, or death.

**5 What if there is a serious problem?**

An allergic reaction could occur after the child leaves the clinic. If you see signs of a severe allergic reaction (hives, swelling of the face and throat, difficulty breathing, a fast heartbeat, dizziness, or weakness), call 9-1-1 and get the child to the nearest hospital. For other signs that concern you, call your child's health care provider.

Serious reactions should be reported to the Vaccine Adverse Event Reporting System (VAERS). Your doctor will usually file this report, or you can do it yourself. Visit [www.vaers.hhs.gov](http://www.vaers.hhs.gov) or call 1-800-832-7867. VAERS is only for reporting reactions, it does not give medical advice.

**6 The National Vaccine Injury Compensation Program**

The National Vaccine Injury Compensation Program (VICP) is a federal program that was created to compensate people who may have been injured by certain vaccines. Visit [www.hrsa.gov/vaccinecompensation](http://www.hrsa.gov/vaccinecompensation) or call 1-800-338-2382 to learn about the program and about filing a claim. There is a time limit to file a claim for compensation.

**7 How can I learn more?**

- Ask your healthcare provider.
- Call your local or state health department.
- Contact the Centers for Disease Control and Prevention (CDC):
  - Call 1-800-232-4636 (1-800-CDC-INFO) or
  - Visit [www.cdc.gov/vaccines](http://www.cdc.gov/vaccines)

## BENEFICENCE & NON-MALEFICENCE

“First do no harm”

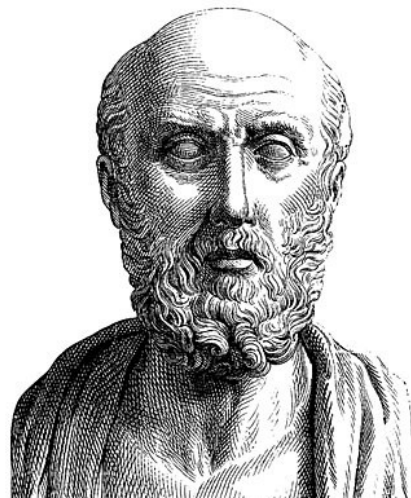
Maximize benefit, minimize harm

Beneficence = Benefits

- Prevention of disease
  - Individual
  - Community

Maleficence = Risks

- Side effects of vaccines



## VACCINE “SAFETY”

### Vaccines Risks

Vasovagal reaction COMMON  
 Pain/redness at injection site 2:3  
 Headache 3:10  
 Fever 1:25  
 Intussusception (Rotavirus vaccine) 1:20,000  
 Mild allergic reaction 1:50,000  
 Anaphylaxis 1:100,000  
 Seizures 6-34:100,000  
 Guillain-Barre Syndrome 2:1,000,000

### Vaccine Benefits

Protection from disease  
 Protection from long-term consequences of disease
 

- Paralysis (polio)
- Cervical cancer (HPV)
- Respiratory failure (pertussis)
- Encephalitis (measles, varicella)

 Herd immunity

cdc.gov

# JUSTICE



Definition: equal treatment of all patients



Barriers to care → greater risk of disease



Access to vaccines



# UTILITARIANISM



DEFINITION: GREATEST GOOD  
FOR THE GREATEST NUMBER



PUBLIC HEALTH BENEFIT,  
HERD IMMUNITY



CONSEQUENCES OF POOR  
VACCINE COMPLIANCE

# HOW SHOULD THE PA RESPOND?

---



## THE PA'S DILEMMA



ROLE OF THE PA



RESPECT PARENTS'  
AUTONOMY



ADVOCATE FOR THE  
CHILD'S HEALTH



SUPPORT PUBLIC  
HEALTH/HERD  
IMMUNITY

## LEGAL CONSIDERATIONS

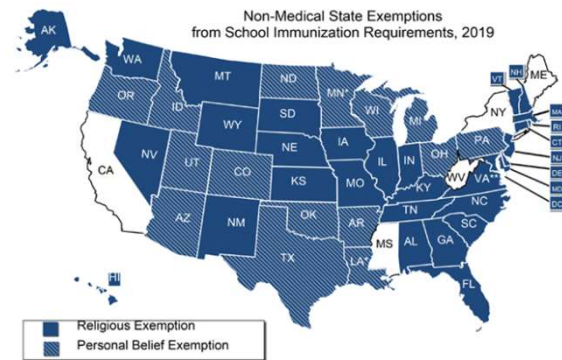
Parents have the right to refuse care

- Cannot vaccinate child without parent's consent

Vaccination required for school enrollment

Vaccine exemptions

- Medical – all 50 states
- Religious – 45 states
- Philosophical/personal belief – only 15 states
- Public policy



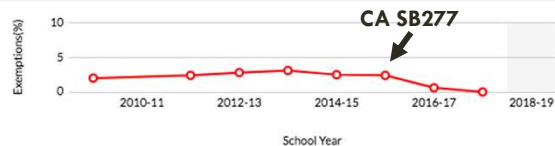
# Estimated number and percentage of children enrolled in kindergarten with an exemption from one or more vaccines by state and the United States, School Vaccination Assessment Program, 2009-10 through 2018-19 school years

**CDC** Centers for Disease Control and Prevention  
 CDC 24/7: Saving Lives. Protecting People™

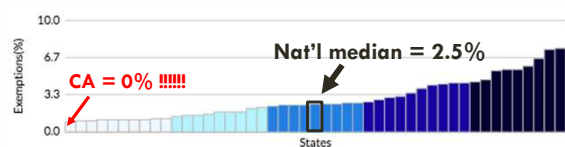
Currently Viewing: School Assessment >> Non-medical Exemption >> All kindergartners >> Exemptions for 2018-19



Reported Exemptions from One or More Vaccines for Children Enrolled in Kindergarten by Year



Reported Exemptions from One or More Vaccines for Children Enrolled in Kindergarten by State



Reported Exemptions from One or More Vaccines for Children Enrolled in Kindergarten

States	N	Survey Type	Total(#)	%	Footnotes
● California	568,947	Census	-	NA	‡†
● Colorado	64,191	Census	3,017	4.7	§

## APPROACHES TO VACCINE HESITANCY

### Dismissal from practice

- 39% of pediatricians choose dismissal
- Transfer of care
- Implications of dismissal

### Maintain in practice

- HARDER
- Recommendations?

Hendrix et al., *AJPH* (2016)

## RECOMMENDED STRATEGIES

Identify concerns, knowledge, attitudes towards vaccines

Misinformation → communicate, educate

Distrust of medical community → build trust and rapport

What about alternate vaccination schedules?

Minimize infection risk

Document, document, document

Public health initiatives → improve access, combination vaccines, PSA, EMR alerts

Educate YOURSELF



[cdc.gov](https://www.cdc.gov)

## PROVIDER RESOURCES

- **\*CDC:** <https://www.cdc.gov/vaccines/index.html>
  - Vaccination schedule: <https://www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html>
  - VIS: <https://www.cdc.gov/vaccines/hcp/vis/index.html>
  - Common vaccine concerns: <https://www.cdc.gov/vaccinesafety/concerns/index.html>
  - Vaccine safety information: <https://www.cdc.gov/vaccinesafety/hcproviders/index.html>
  - Vaccine conversations: <https://www.cdc.gov/vaccines/hcp/conversations/index.html>
  - Resources, CME: <https://www.cdc.gov/vaccinesafety/hcproviders/hcresources.html>
- **AAP:** <https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/immunizations/Pages/Immunizations-home.aspx>
  - AAP Refusal Form: [https://downloads.aap.org/DOPCSP/SOID\\_RTV\\_form\\_01-2019\\_English.pdf](https://downloads.aap.org/DOPCSP/SOID_RTV_form_01-2019_English.pdf)
  - Countering vaccine hesitancy: <https://pediatrics.aappublications.org/content/138/3/e20162146>
  - Responding to parents: <https://pediatrics.aappublications.org/content/115/5/1428.full>
- **CHOP Vaccine Education Center:** <https://www.chop.edu/centers-programs/vaccine-education-center>
- **Immunization Vaccine Coalition**
  - Handouts: <https://www.immunize.org/handouts/discussing-vaccines-parents.asp>
  - State laws/exemption information: <https://www.immunize.org/laws/>



## PARENT RESOURCES

- CDC parent webpage: <https://www.cdc.gov/vaccines/parents/index.html>
- Evaluating reliable websites: <https://www.cdc.gov/vaccines/vac-gen/evalwebs.htm>
- CDC parent resources: <https://www.cdc.gov/vaccines/schedules/parents-adults/resources-parents.html>
- CHOP vaccine app: <https://www.chop.edu/centers-programs/parents-pack/vaccines-go-what-you-should-know>

The diagram consists of three numbered boxes arranged horizontally, each with a circular number at the top and text below. The boxes are shaded in a gradient from light to dark. Below the boxes is a teal bar with the word 'CONCLUSION' in white capital letters, preceded by a vertical line.

- 1  
Balance of public health and individual health
- 2  
Respect ethical principles/parents' autonomy
- 3  
Keep the conversation ongoing

CONCLUSION

## REFERENCES

- \* American Academy of Pediatrics. (2013). Documenting Parental Refusal to Have Their Children Vaccinated. Retrieved from [https://downloads.aap.org/DOPCSP/SOID\\_RT\\_V\\_Form\\_01-2019\\_English.pdf](https://downloads.aap.org/DOPCSP/SOID_RT_V_Form_01-2019_English.pdf)
- \* American Academy of Pediatrics. (2016). Medical Versus Nonmedical Immunization Exemptions for Child Care and School Attendance. *Pediatrics*. doi:10.1542/peds.2016-2145
- \* Boom, J. A. & Healy, C. M. (2019). Standard childhood vaccines: Parental hesitancy or refusal. In: *UpToDate*, Post, T. W. (Ed), UpToDate, Waltham, MA, 2014.
- \* Centers for Disease Control and Prevention. (2015). *Epidemiology and Prevention of Vaccine-Preventable Diseases* (J. Hamborsky, A. Kroger, & S. Wolfe Eds. 13 ed.). Washington D.C.: Public Health Foundation.
- \* Centers for Disease Control and Prevention. (2018). Possible Side-Effects from Vaccines. Retrieved from <https://www.cdc.gov/vaccines/vac-gen/side-effects.htm>
- \* Centers for Disease Control and Prevention. (2019). Birth-18 Years Immunization Schedule. Retrieved from <https://www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html>
- \* Edwards, K. M., & Hackell, J. M. (2016). Countering Vaccine Hesitancy. *Pediatrics*, 138(3). doi:10.1542/peds.2016-2146
- \* Gostin, L. O. (2015). Law, ethics, and public health in the vaccination debates: Politics of the measles outbreak. *Journal of the American Medical Association*, 313(11), 1099-1100. doi:10.1001/jama.2015.1518
- \* Halperin, B., Melnychuk, R., Downie, J., & Macdonald, N. (2007). When is it permissible to dismiss a family who refuses vaccines? Legal, ethical and public health perspectives. *Paediatrics & Child Health*, 12(10), 843-845.
- \* Hendrix, K. S., Sturm, L. A., Zimet, G. D., & Meslin, E. M. (2016). Ethics and childhood vaccination policy in the United States. *American Journal of Public Health*, 106(2), 273-276. doi:10.2195/AJPH.2015.302952
- \* Hill, H. A., Elam-Evans, L. D., Yankey, D., Singleton, J. A., & Kang, Y. (2017). Vaccination Coverage Among Children Aged 19–35 Months — United States, 2017. *MMWR*, 67(40), 1123-1128.
- \* Honda, H., Shimizu, Y., & Rutter, M. (2005). No effect of MMR withdrawal on the incidence of autism: A total population study. *Journal of Child Psychology and Psychiatry*, 46(6), 572-579. doi:10.1111/j.1469-7610.2005.01425.x
- \* MacDonald, N. E., & SAGE Working Group on Vaccine Hesitancy. (2015). Vaccine hesitancy: Definition, scope and determinants. *Vaccine*, 33, 4161-4164. doi:10.1016/j.vaccine.2015.04.036
- \* Madsen, K. M., Hviid, A., Vestergaard, M., Schendel, D., Wohlfahrt, J., Thorsen, P., . . . Melbye, M. (2002). A population-based study of measles, mumps, and rubella vaccination and autism. *New England Journal of Medicine*, 347(19), 1477-1482. doi:10.1056/NEJMoa021134
- \* National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. (1979). *The Belmont report: Ethical principles and guidelines for the protection of human subjects of research*. Retrieved from <https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/read-the-belmont-report/index.html>
- \* Opel, D. J., Feemster, K. A., Omer, S. B., Orenstein, W. A., Richter, M., & Lantos, J. D. (2014). A 6-month-old with vaccine-hesitant parents. *Pediatrics*, 133(3), 526-530. doi:10.1542/peds.2013-2723
- \* Phadke, V. K., Bednarczyk, R. A., Salmon, D. A., & Omer, S. B. (2016). Association Between Vaccine Refusal and Vaccine-Preventable Diseases in the United States: A Review of Measles and Pertussis. *JAMA*, 315(11), 1149-1158. doi:10.1001/jama.2016.1353
- \* Purtilo, R. B., & Doherty, R. F. (2016). *Ethical Dimensions in the Health Professions* (6 ed.). St. Louis, Missouri: Elsevier.
- \* Schuklenk, U. (2005). Module one: Introduction to research ethics. *Developing World Bioethics*, 5(1), 1-13. doi:10.1111/j.1471-8847.2005.00099.x
- \* Shamoo, A. E., & Resnik, D. B. (2014). *Responsible conduct of research*. Oxford: Oxford University Press.
- \* Smith, P. J., Chu, S. Y., & Barker, L. E. (2004). *Pediatrics*, 114(1), 187-195. doi:10.1542/peds.114.1.187
- \* The History of Vaccines. (2019). Retrieved from <https://www.historyofvaccines.org/timeline/all>

CONTACT  
INFORMATION

Rachel La Costa, PA-C

[rachelmlacosta@gmail.com](mailto:rachelmlacosta@gmail.com)