

Arizona Immunization Conference April 15 & 16, 2025

Lauren Krebs, MPH | School Health Epidemiologist



## Speaker



Lauren Krebs, MPH

**Epidemiologist/School Assessment Coordinator** 

#### **Financial Disclosures**

- Lauren Krebs, faculty for this CE activity, has no relevant financial relationship(s) with ineligible companies to disclose.
- None of the planners for this activity have relevant financial relationships to disclose with ineligible companies.
- The Arizona Alliance for Community Health Centers is accredited by the Arizona Medical Association to provide medical education for physicians.
- The Arizona Alliance for Community Health Centers designated the 2025
   Arizona Immunization Conference educational activity for a maximum of 11
   hours AMA PRA Category 1 Credits Physicians should only claim credit
   commensurate with the extent of their participation in the activity.
- The Arizona Pharmacy Association is accredited by the Accreditation Council for Pharmacy Education (ACPE) as a provider of continuing pharmacy education.



# Learning Objectives:

This presentation will address School and Child Care Immunization
Coverage and Arizona immunization requirements. Attendees will also learn strategies for increasing immunization uptake.

- 1. Review the Arizona Statutes,
  Administrative Code, and how
  they apply to the Arizona school
  immunization requirements.
- Review why vaccines are important and look at the current trends in immunizations including coverage rates in Arizona and the United States.
- 3. Discuss strategies to help boost immunization uptake and how the immunization education course (IEC) may provide support for educators and parents.



# Arizona School Immunization Requirements & History of Vaccines



#### **Background on Immunization Requirements**

- Arizona has two sets of required immunizations - one for <u>Child Care</u> and one for <u>Grade School</u> (K-12).
- These requirements are detailed in Statute 15-871 to 15-874 and A.A.C. R9-6-7
- Child Care requirements start at 2 months of age through 59 months.
- Grade School requirements start upon enrollment in Kindergarten through 12th grade.



#### Legal Mandates Requiring Vaccination to Attend School

- Legal mandates are one of the best ways to maintain vaccine uptake.
- Increase the likelihood that parents with concerns will consult legitimate medical professionals to discuss their questions or fears.
- States that have eliminated religious and personal beliefs exemptions have higher immunization rates. When legislators in California, Michigan, and New York strengthened their mandates, vaccination rates in those states went up.



<u>How to Inoculate Against Anti-Vaxxers - The</u> New York Times

#### **What Does Arizona Law Say?**

#### A.R.S. 15-872 delegates responsibility:

- A. The director of the department ... with the superintendent ... shall develop ... standards for documentary proof.
- B. A pupil shall not be allowed to attend school without submitting documentary proof to the school administrator unless the pupil is exempted from immunization pursuant to section 15-873 (*D similar, upon enrollment*).
- Notwithstanding ... B and D ... a pupil may be ... allowed to attend a school if the pupil has received at least one dose of each of the required immunizations prescribed ... and has established a schedule for completion ... The parent ... of a pupil shall present to the school administrator documentary proof of the immunizations received and a schedule prepared by the pupil's physician or registered nurse practitioner or a health agency for completion of additional required immunizations.
- The school administrator shall review the school immunization record for each pupil ... at least twice each school year until the pupil receives all of the required immunizations and shall suspend a pupil ... who fails to comply ... Immunizations received ... shall be entered in the pupil's school immunization record.
- G. Unless proof of an exemption from immunization pursuant to section 15-873 is provided, a pupil who is admitted or allowed to continue to attend and who fails to comply with the immunization schedule within the time intervals specified by the schedule shall be suspended from school attendance until documentary proof of the administration of another dose of each appropriate immunizing agent is provided to the school administrator.

#### **Arizona Administrative Code**

- The Arizona Administrative code outlines the statute (authorized in 15-872 A).
- These are informally called "rules" and the code outlines responsibilities for ADHS, counties, and school administrators and staff.
- Most rules, including the immunizations are in Title 9, Chapter 6,
   Article 7 (R9-6-70x) [Child Care in ch. 3 and 5].
- Notable sections are R9-6-702 through R9-6-707



#### **Arizona Administrative Code**

**Arizona Revised Statutes 15-872(B)**: A pupil shall not be allowed to attend school without submitting documentary proof to the school administrator unless the pupil is exempted from immunization.

Arizona Revised Statutes 15-872(G): Unless proof of an exemption from immunization pursuant to section 15-873 is provided, a pupil who is admitted or allowed to continue to attend and who fails to comply with the immunization schedule within the time intervals specified by the schedule shall be suspended from school attendance until documentary proof of the administration of another dose of each appropriate immunizing agent is provided to the school administrator.



#### **Section Summary**

- R9-6-702: The immunizations, doses, and ages required.
- R9-6-703: Requirements for administering vaccines.
- R9-6-704: Documenting Immunizations on the student record (for school and child care)
- R9-6-705: Admission and removal of students. Outbreak and vaccine shortage procedures.
- R9-6-706: Exemptions of all types and processes surrounding them.
- R9-6-707: Immunization Data Report methodology.

#### **Section Highlights**

- 702: Shows each vaccine and the required age. Of note is that the requirements start at 2 months for Child Care and upon entry into Kindergarten.
- 703: Upon request of a parent, a local health agency shall provide for the immunization of a child against any disease listed in R9-6-702.
- 704: Authorizes ASIIS printouts, SIS printouts, and other records similar to the ASIR.
- 705: Establishes the 15-day grace period for Child Care (applied to all schools in practice).
- 708: Authorizes counties, ADHS, administration to review records.
- 15-872 (I): A school and its employees are immune from civil liability for decisions concerning the admission ... based on a good faith implementation of the requirements of this article.



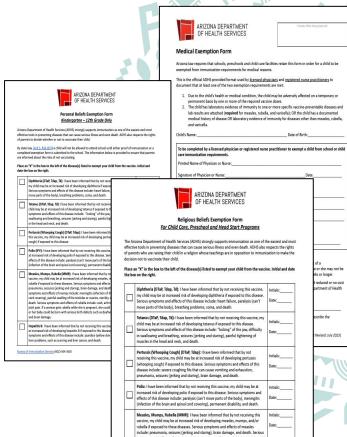
#### Pop Quiz!

How many days is the grace period from parental notification to comply with vaccine requirements (either provide documentation of vaccine or an exemption)?

15 Days

#### **Acceptable ADHS Exemption Forms**

- A current ADHS form must be used for all exemptions
- Schools/Child Care Centers cannot accept any other forms even from doctor offices
- Religious Exemption Form
  - Valid only for child care, preschool and Head
     Start
- Personal Belief Exemption Form
  - Valid only for K-12th grade students
- Medical Exemption Form
  - Valid for all ages





#### Pop Quiz!

Which **non-medical** exemption can parents use for Head Start?

# Religious Beliefs Exemption

## Why are vaccines important?







## Why are vaccines important?

It is estimated that, each year worldwide, vaccines prevent up to **3 million** deaths.

<u>Vaccination: the cornerstone of an efficient</u> <u>healthcare system - PMC</u>



## Vaccines Are Not Just One of the Most Significant Public Health Interventions in History - They are Also Cost-effective



Vaccines continue to be regarded as one of the most cost-effective healthcare interventions.

<u>Vaccination: the cornerstone of an efficient</u> <u>healthcare system - PMC</u>



#### A HISTORY OF VACCINES





200BC

Chinese doctors use dried

cowpox scabs to provide

immunity to smallpox but,

1-3% died during the process

Over 1000 years later, the smallpox vaccine was developed by Edward Jenner, using horses, mules, goats, and rabbits

1796

1884

Louis Pasteur created the first **rabies vaccine** and proved that it worked in **dogs**  1914

Diphtheria antitoxin first tested on guinea pigs, rabbits, dogs and cats 1921

First human tests of the **BCG vaccine** for tuberculosis, previously tested on **guinea pigs** 

1981

A human-bloodderived **hepatitis B vaccine** is developed using **chimpanzees**  1971

The combined measles, mumps and rubella (MMR) vaccine is created using monkeys, pigs, sheep, and horses 1952

Salk begins testing a polio vaccine on children following tests in monkeys 1936

Max Theiler tests his Yellow fever vaccine using tissue cultures prepared from chicken eggs 1924

The tetanus toxoid vaccine was developed using horses and guinea pigs

2006

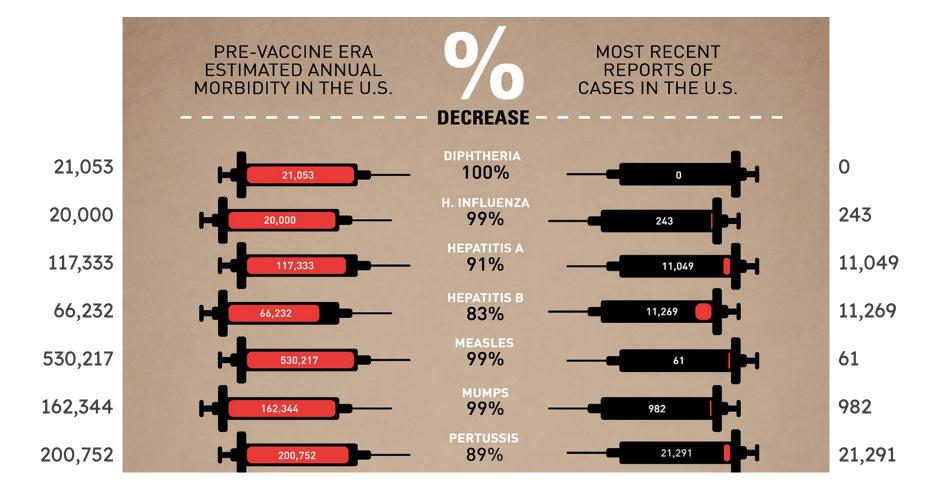
HPV vaccine for cervical cancer licensed for use in the USA, developed using rabbits, mice, and monkeys

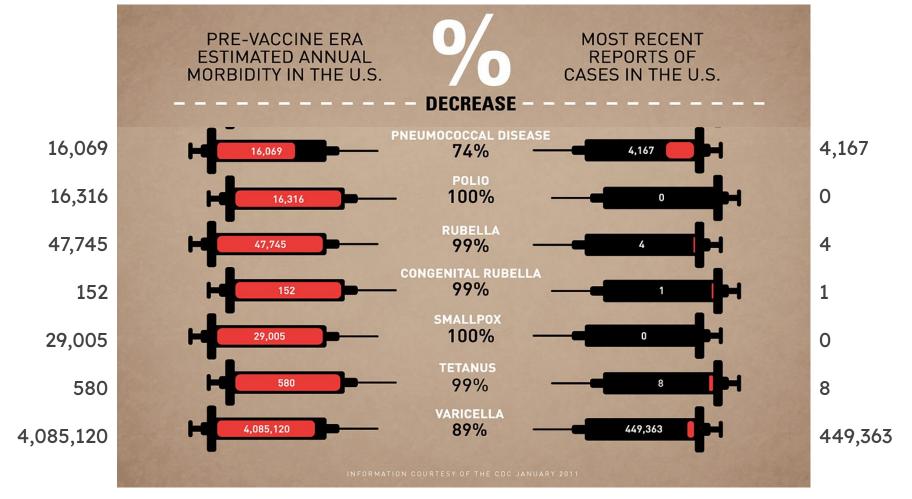
2015

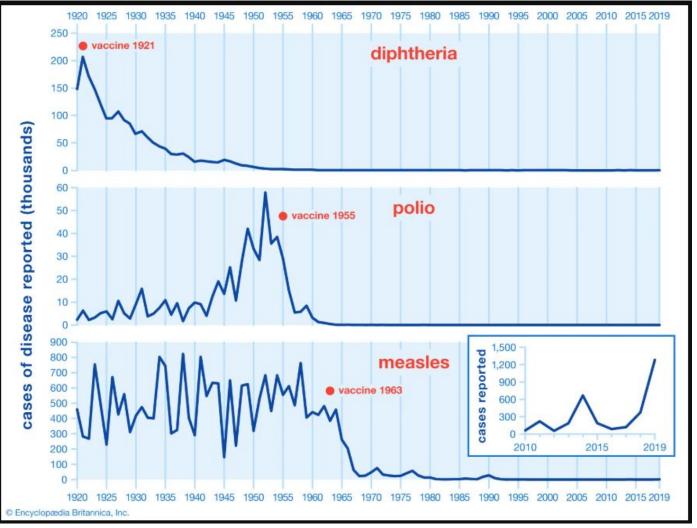
Malaria vaccine is approved for use after tests in mice, rats, and humans 2019

Ebola vaccine for humans and monkeys gains FDA approval following tests in monkeys, guinea pigs, and baboons 2020

Covid-19 vaccines produced rapidly in response to a global pandemic, using mice, monkeys, pigs, and ferrets







"vaccine".

Encyclopedia
Britannica

# So, why doesn't everyone want these potentially life saving vaccines?

- Most people do choose to vaccinate
- Child Immunization rates have dropped since 2020.
- The effects of the pandemic, including misinformation and disinformation may contribute to decreases in coverage.
- Some people cannot receive vaccines.
  - To protect them, about 95% of the rest of the population would need to be vaccinated.
- Because Arizona and other states have fallen below 95% in one or more immunizations, communities are at risk of increased disease.





#### Pop Quiz!

What is the percentage level of those immunized needed to achieve community or "herd" immunity for a population?

95%

## Relative Risk of Vaccines and Effects of Disease

- The World Health Organization ranked vaccine hesitancy among the top 10 health threats worldwide.
- Being unvaccinated can result in illness or death.
- Side effects from vaccines are extremely unlikely, even minor ones.
- As vaccination rates have fallen, highly contagious illnesses like measles have made a resurgence.

You Are Unvaccinated and Got Sick. These Are Your Odds. - The New York Times





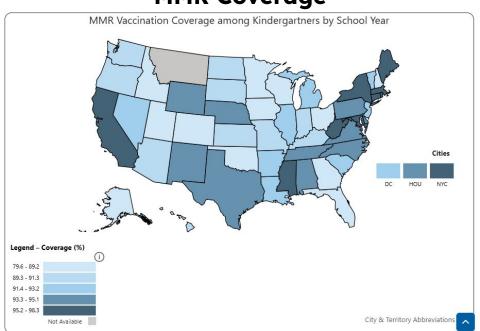


## Arizona School Immunization Data

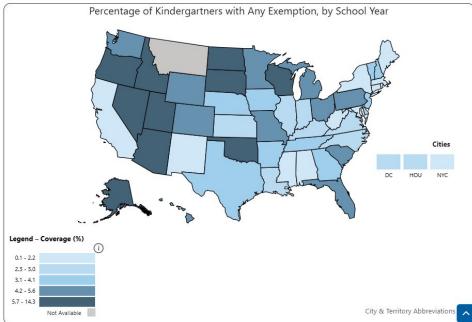


#### What is the Current Status of Vaccine Uptake in the U.S?

#### 2023-2024 Kinder MMR Coverage



#### 2023-2024 Kinder Exemptions





# Coverage with Selected Vaccines and Exemption from School Vaccine Requirements Among Children in Kindergarten — United States, 2023–24 School Year | MMWR

#### Summary

#### What is already known about this topic?

From the 2019–20 to the 2022–23 school year, national kindergarten coverage with state-required vaccinations declined from 95% to approximately 93%.

#### What is added by this report?

During the 2023–24 school year, coverage declined to <93% for all reported vaccines (range = 92.3% [diphtheria, tetanus, and acellular pertussis vaccine] to 92.7% [measles, mumps, and rubella vaccine]). The exemption rate increased to 3.3% from 3.0% the year before and increased in 41 jurisdictions, exceeding 5% in 14.

#### What are the implications for public health practice?

Decreasing vaccination coverage and increasing exemptions increase the risk for vaccine-preventable disease outbreaks. Efforts by health departments, schools, and providers are needed to ensure that students begin school fully vaccinated.



#### **Implications for Public Health Practice**

- Vaccination coverage in U.S. among kindergarten students remains below pre-pandemic levels
- Exemptions have increased in 41 states 14 states have >5%.
- Clusters of undervaccinated children can lead to outbreaks
- It is important to make sure children are fully vaccinated before school entry, or before provisional enrollment periods end.
- Exemptions in excess of 5% limit the level of vaccination coverage that can be achieved, which increases the risk of outbreaks of vaccine-preventable diseases.



<u>Coverage with Selected Vaccines and Exemption from School Vaccine Requirements</u>

<u>Among Children in Kindergarten — United States, 2023–24 School Year | MMWR</u>



#### Implications for Public Health Practice (con't)



- It is not clear whether this reflects a true increase in opposition to vaccination, or if parents are opting for nonmedical exemptions because of barriers to vaccination or out of convenience.
- The COVID-19 pandemic affected childhood routine vaccination
  - increase in hesitancy
  - barriers to vaccination
- Enforcement of school vaccination requirements, school-based vaccination clinics, reminder and recall systems, and follow-up with undervaccinated students have already been shown to be effective in increasing vaccination coverage.



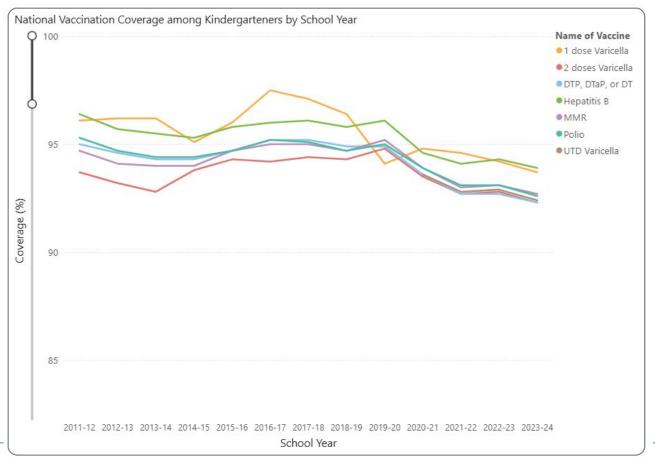
## What Authority Does ADHS Have to Collect and Evaluate Immunization Data?

- ADHS has a cooperative agreement with the CDC which requires states who receive funding to provide IDR data. We have a responsibility to collect IDR data from schools on a yearly basis.
- There are Arizona laws governing public health that guide us in these matters.



See the <u>Arizona Immunization Handbook</u>, revised July 2024, for more information

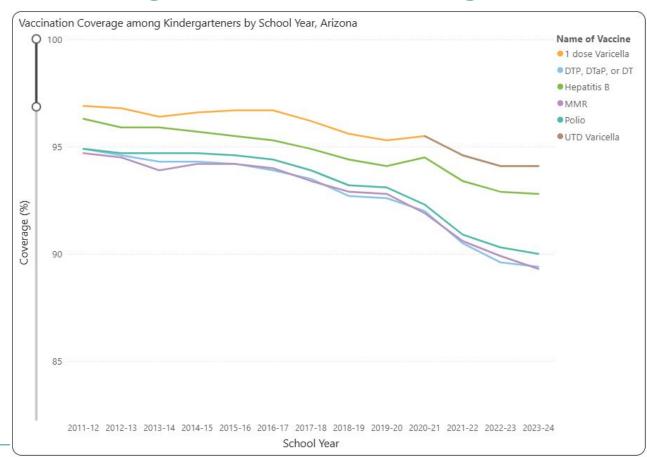
#### National Coverage Rates for Kindergarten, 2011–2024



SchoolVaxView
Interactive School
Vaccination Coverage |
CDC



#### Arizona Coverage Rates for Kindergarten, 2011-2024



SchoolVaxView
Interactive School
Vaccination Coverage |
CDC



TABLE. Estimated\* coverage<sup>†</sup> with measles, mumps, and rubella; diphtheria, tetanus, and acellular pertussis; poliovirus; and varicella vaccines; grace period or provisional enrollment<sup>§</sup>; and any exemption<sup>¶,\*\*</sup> among kindergartners, by jurisdiction — United States,<sup>††</sup> 2023–24 school year

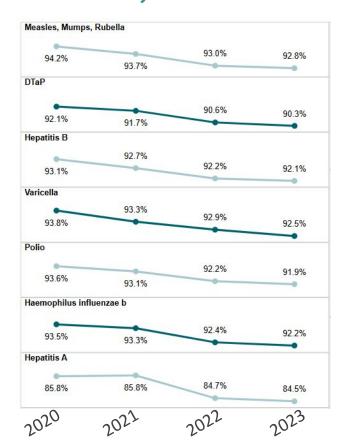
Jurisdiction	Kindergarten population <sup>§§</sup>	Percentage							PP change in	
		Surveyed <sup>¶¶</sup>	2 MMR doses***	5 DTaP doses <sup>™</sup>	4 Polio doses <sup>555</sup>	2 VAR doses <sup>¶¶¶</sup>	Grace period or provisional enrollment	Any exemption	any exemption from last year to this year	Potentially achievable coverage****
National estimate***	3,823,472	93.1	92.7	92.3	92.6	92.4	2.6	3.3	0.3	96.9
Median***	_	_	92.0	91.3	91.7	91.8	2.0	3.7	0.4	96.4
Arizona"""	74,834	99.6	89.3	89.4	90.0	94.1	NR	8.5	1.1	92.8

\*\*\*\* Religious exemptions were not allowed.

111 Most states require 2 doses of VAR for school entry; Alabama, Arizona, New Jersey, Oklahoma, and Oregon require 1 dose.



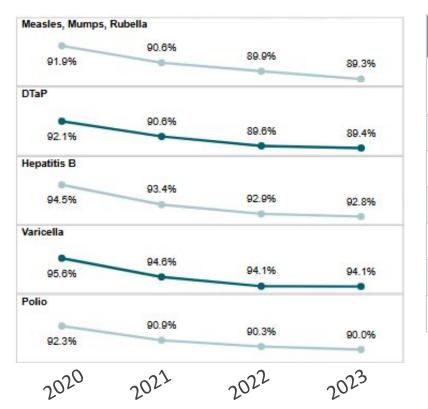
## Arizona Immunization Coverage Rates - Child Care, 2021-2024



Childcare						
	2023	2024	% Change 23-24			
Students Enrolled	71,919	67,392	-6.29%			
4+ DTaP	90.3%	89.9%	-0.36%			
3+ Polio	91.9%	91.5%	-0.44%			
1+ MMR	92.8%	92.4%	-0.40%			
3+ HIB	92.2%	91.6%	-0.62%			
2+ Hep A**	84.5%	83.7%	-0.80%			
3+ Hep B	92.1%	91.4%	-0.71%			
1+ Varicella	92.5%	92.0%	-0.50%			



## Arizona Immunization Coverage Rates - Kindergarten, 2021–2024

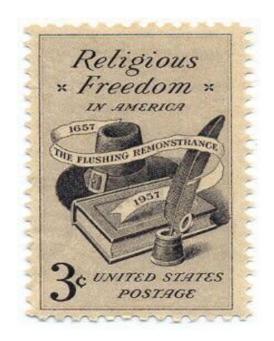


Kindergarten							
	2023	2024	% Change 23-24				
Students Enrolled	74,535	73,056	-1.98%				
4+ DTaP	89.4%	88.7%	-0.72%				
3+ Polio	90.0%	89.1%	-0.87%				
2+ MMR	89.3%	88.7%	-0.65%				
3+ Hep B	92.8%	92.3%	-0.52%				
1+ Varicella	94.1%	93.4%	-0.67%				

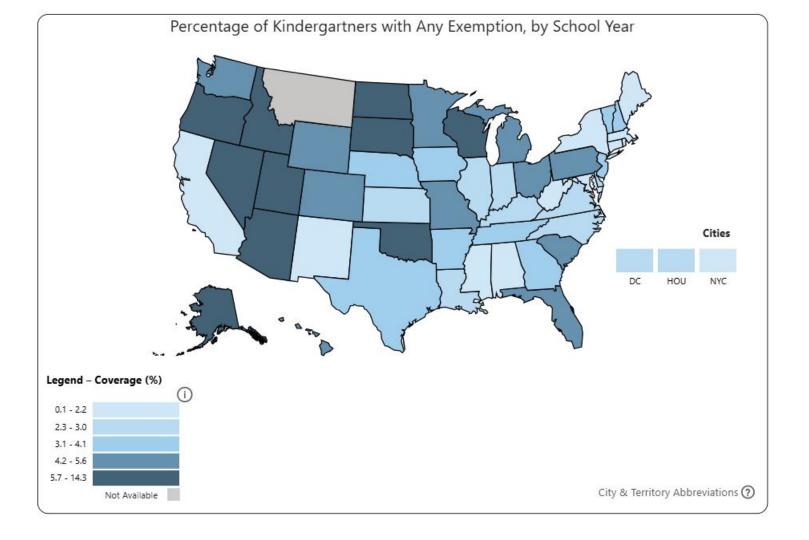


#### What Role do Exemptions Play in these Data?

- Most states allow one or several options for exemptions: medical, personal beliefs, and/or religious.
- In 2024, 14 states have an exemption rate
   ≥5%.
- Religious freedom is important to protect, but a California appeals court in upholding a California law that removed religious exemptions.
  - In 2018, a federal appeals court noted an earlier ruling that, "The right to practice religion freely does not include liberty to expose the community or the child to communicable disease or the latter to ill health or death." Brown v. Smith, 235 Cal. Rptr. 3d 218, 24 Cal. App. 5th 1135 (2018)

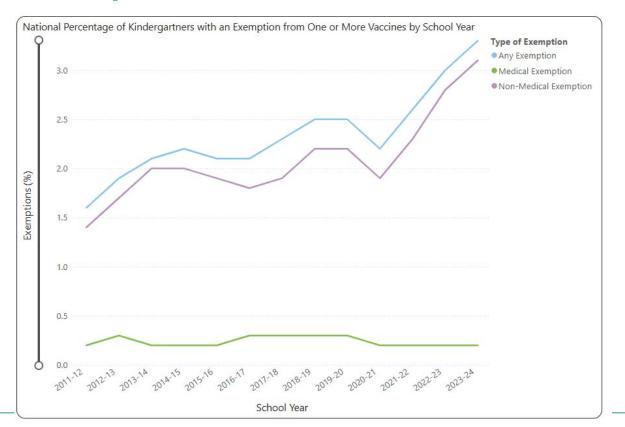








## National Exemption Rate for Kindergarteners for One or More Vaccines by School Year



SchoolVaxView
Interactive School
Vaccination Coverage |
CDC



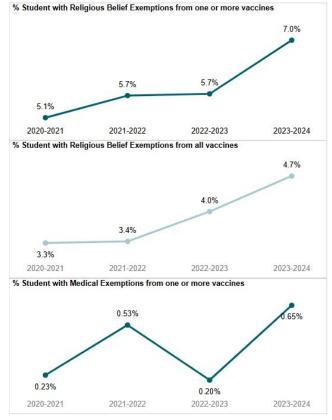
## Arizona Religious Belief Exemption Rates - Child Care, 2021-2024

Childcare					
	2023	2024	% Change 24-23		
Religious Exempt One	7.0%	7.2%	0.2%		
Religious Exempt All	4.7%	4.8%	0.1%		
Medical Exempt	0.7%	0.2%	-0.5%		

1 or more

All vaccines

Medical exemption, 1 or more vaccines



Arizona Immunization Exemption Rates - Kindergarten,

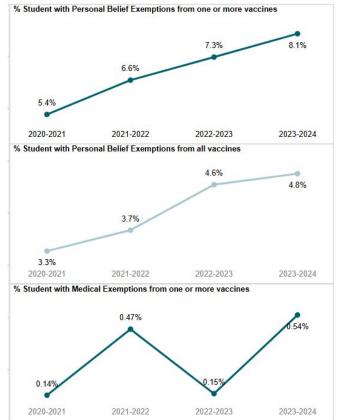
2021-2024

Kindergarten				
	2023	2024	% Change 24-23	
Personal Belief Exempt One	8.1%	9.0%	0.91%	
Personal Belief Exempt All	4.8%	4.7%	-0.07%	
Medical Exempt	0.5%	0.2%	-0.36%	

1 or more

All vaccines

Medical exemption, 1 or more vaccines



020 2021

2023



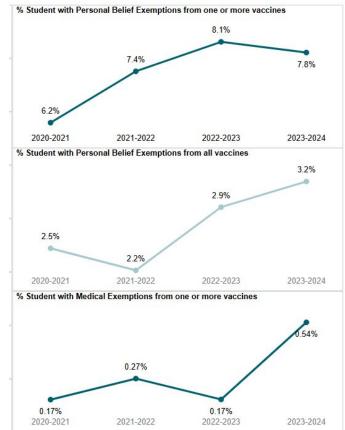
## Arizona Immunization Exemption Rates - 6th Grade, 2021-2024

Sixth					
	2023	2024	% Change 24-23		
Personal Belief Exempt One	7.80%	7.6%	-0.2%		
Personal Belief Exempt All	3.20%	2.9%	-0.3%		
Medical Exempt	0.54%	0.2%	-0.4%		

1 or more

All vaccines

Medical exemption, 1 or more vaccines





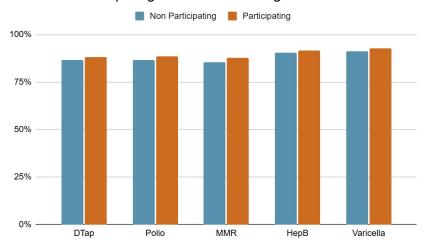
### **Immunization Education Course**



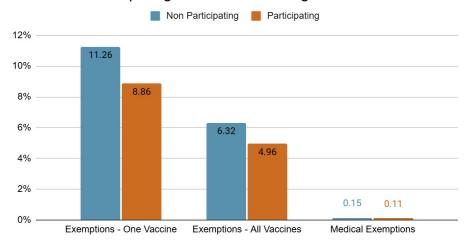


## Relationship of Participation in Immunization Education Course (IEC) with Exemption Rates: Kindergarten, 2023-2024

Average Coverage Rates of Schools Non-Participating vs. Participating in the IEC: Kindergarten 2024



#### Average Exemption Rates of Schools Non-Participating vs. Participating in the IEC: Kindergarten 2024



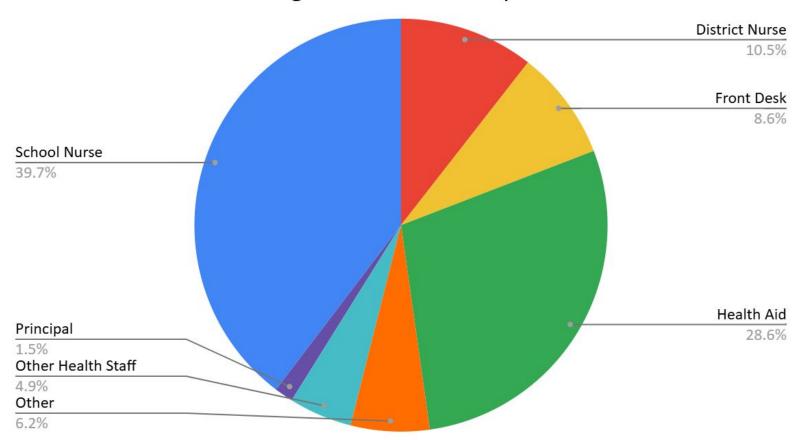


#### Observations from the IEC Data

- IEC Participation is statistically significantly with lower exemption rates for participating schools/districts and has shown increased resilience year to year.
- There may be an opportunity for jurisdictions to include an IEC component in their mitigation strategy to decrease exemptions, either as a teaching tool or as a requirement to receive an exemption by participating in the IEC pilot program.



#### Kindergarten 2024 IDR Reporters





# How Can School Staff Be Supported to Promote Immunization Uptake?

- All staff can help increase rates.
- Most parents still vaccinate their children.
- Small increases in uptake and small decreases in exemptions can make a BIG difference!
- It is normal to have questions and fears about vaccine safety.
  - Staff may have questions, as well.
- We need to accept people where they are be aware of our own inherent biases, assumptions, and cultural differences.
- Although Arizona allows exemptions, many parents are open to gathering more information about vaccines.





## Vaccine Communication



### **Common Questions About Vaccines**

- Parents may still have questions about the vaccines recommended for their child.
- They only want what is best for their children and should be supported and encouraged to ask questions.
- Any school staff can respond to or refer to another team member for further information and guidance.





How can school staff have compassionate conversations about vaccines with parents?





## What you might hear...

#### Don't vaccines cause autism?



Response: Vaccines do not cause autism.

Some people have had concerns that Autism Spectrum Disorder might be linked to the vaccines children receive, but studies have shown that there is no link between receiving vaccines developing ASD.

<u>Autism and Vaccines | Vaccine Safety | CDC</u>

### What you might hear...

#### Are vaccines really safe?



Response: Millions of children and adults have been vaccinated safely. Although vaccines can have some common temporary side effects, including swelling, tenderness, and fever, the risks of the potential diseases one might contract are much greater.

Vaccine Safety | CDC



## What you might hear...

## Why are there so many vaccines given at one time?



**Response:** The CDC reviews the childhood vaccine schedule regularly and it is designed to provide protection against serious diseases that may affect infants early in life. There is **no evidence** that a child's immune system will be damaged or overwhelmed by receiving several vaccines at one time. Any time vaccines are delayed, that child is vulnerable to disease.

Vaccine Safety | CDC





## Resources for School Staff



### Potential Actions to Increase Vaccine Uptake

- Provide support for all staff for education and assistance.
- Compile comprehensive resources for all staff.
- Provide training for rural and urban staff.
- Provide additional training modules for records review.
- Ensure that School Information Systems (SIS) provide appropriate vaccine forecasting.
- **Early records reviews** to give parents time to get appointments.
- Utilize the Immunization Education Course.



### **Early Records Review**

- Promoting vaccination records review early can help start dialogue and give parents more time to schedule vaccine appointments.
- There were significant appointment issues during COVID-19, and are challenges continue to be reported:
  - Back to school rush
  - Insurance and timing issues
  - Work schedule and conflicts
- Starting records review during open enrollment and kindergarten round-up is critical. Focusing efforts on schools and parents at this time can help offset many of the issues.





## Education and support for all school staff involved in Immunizations

- The IDR data identifies opportunities to increase uptake.
  - Small changes can make a big difference
  - IEC as a resource
- Increase administrative help and support to promote vaccine uptake.
- Other resources include: the Healthy Kids AZ app, referral forms, "How To" guides, CDC, TAPI, Immunize.org, and other organizational toolkits and training sessions.
- ADHS provides each county with funding for IDR site visits to provide support for schools.
  - Identify state, district, county, and community partner resources



#### **Resources for School Staff**

- SchoolVaxView Interactive School Vaccination Coverage | CDC
- Answers to Your Most Common Questions about Childhood Vaccines | CDC
- School Health Services | Healthy Schools | CDC
- AZ School Nurses & Health Office Staff Resources Arizona Partnership for Immunization
- Back to School with Routine Vaccines | CDC
- School-located vaccination clinics: best practices for school districts: a guide for school district administrators
- Ways Schools Can Support Routine Vaccination Catch-Up Among School-Aged Children



Arizona School Immunization
Coalition Strategies to Improve School
Vaccination Rates & Decrease Use of
Personal Exemption Forms





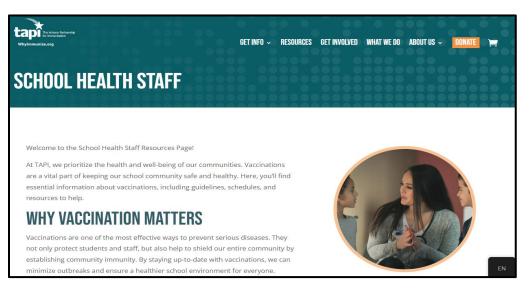
**RESOURCE HUB** 

**MENTORSHIP PROGRAM** 

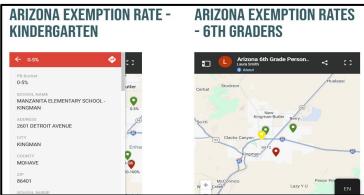




#### **Resource Hub**









### School Health Mentoring Forums

- Goals: To equip school health staff to effectively address immunization challenges in their school
- Virtual meetings targeting <u>all</u> school health staff, from <u>all</u> school types, within <u>all</u> of Arizona
- Applied for grant funding to continue the Mentoring Forum in the 2025-2026 school year
- Notify <u>Lsmith@tapi.org</u> if interested in participating in the 2025-2026 forums





# Learn More About the Arizona School Immunization Coalition

- 1. Visit the Coalition's poster presentation in the Main Hall
- Contact Laura Smith, <u>Lsmith@tapi.org</u> for more information



## Questions?





### **Thank You!**

**Questions? Contact Us:** 

Lauren Krebs | School Epidemiologist | lauren.krebs@azdhs.gov | 480-490-6084

Kate Whitman | Nurse Educator | Nurse Ed





## Claim your Continuing Education Credit





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