

VAXON

Inside the campaign to boost immunization rates for babies and kids in the Portland area.

BY ALICE CALLAHAN, Ph.D.

Oregon is known for its gorgeous coastline and abundant rainfall, craft beer and fresh fish. But ask anyone who works in pediatrics or public health, and they'll add another thing to the list: Low vaccination rates among children, starting in infancy.

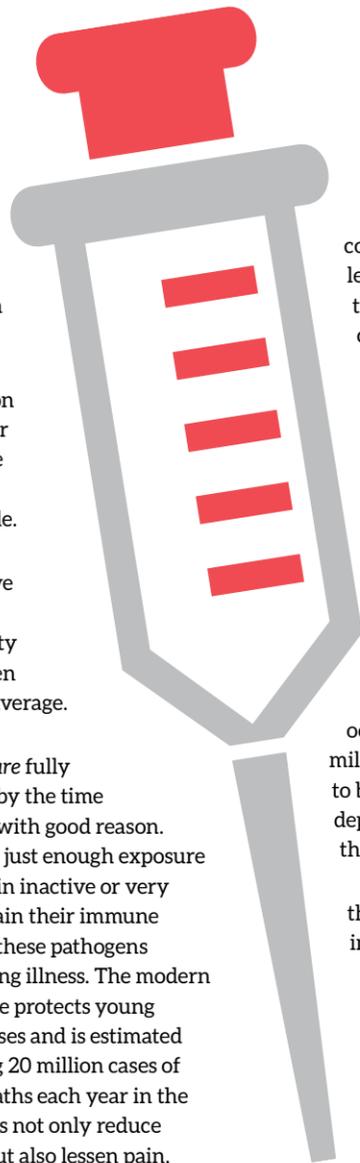
In 2016, 6.2 percent of Oregon kindergarteners had a nonmedical exemption for at least one vaccine normally required for school attendance, allowing them to skip the shots but stay in school. That puts us in first place for nonmedical exemptions, nationwide.

The exemption rate has climbed steadily since around 2000, save for a slight dip in 2015, and Multnomah County consistently tracks even higher than the state average.

Medical exemptions are for children who can't receive a vaccine for rare medical reasons, such as an allergy to a vaccine ingredient or severe immunodeficiency caused by something like cancer or HIV. Only 0.1 percent of Oregonian kindergarteners have medical exemptions.

Nonmedical exemptions are obtained when parents want to opt out of vaccinating their child for any other reason.

The flip side is that 94 percent of parents are fully vaccinating their kids by the time they start school, and with good reason. Vaccines give children just enough exposure to bacteria or viruses (in inactive or very weakened forms) to train their immune systems to respond to these pathogens without actually causing illness. The modern immunization schedule protects young children from 14 diseases and is estimated to prevent a staggering 20 million cases of disease and 42,000 deaths each year in the United States. Vaccines not only reduce deaths from disease, but also lessen pain, suffering and other medical complications. That in turn cuts down on hospital stays, antibiotic and other pharmaceutical use, and lost school days for kids and workdays for



parents alike. (Most of these vaccines are given in the first year or two of life, in a well-tested and carefully designed immunization schedule. Some parents consider a delayed immunization schedule, but this only leaves babies without protection from disease when they are young and most vulnerable to dangerous complications.)

So if most Oregonian parents vaccinate their kids, then why are public health experts worried? It's because vaccines work best when immunization rates are high enough that even if someone brings a disease into a community — perhaps returning from a trip overseas — the disease has no one else to infect and can't spread. That's called "herd immunity," and it's especially important for people with weakened immune systems and infants too young to be vaccinated.

Additionally, vaccines aren't 100 percent effective in everyone, so even vaccinated children will occasionally catch a disease, though they usually have a milder course of illness. The percentage of people that need to be vaccinated in a community to prevent an outbreak depends on the disease and how easily it spreads, but these thresholds range from about 80 to 95 percent.

Our statewide immunization rates may just about hit those targets, but we have smaller communities where immunization rates fall far below them. For example,

Thanks to vaccines, young children are protected from 14 diseases:

Changes in kindergarten exemption rates in Oregon and Multnomah County, 2006-2016.



Portland Village School, a public charter school in North Portland, and Cedarwood Waldorf School, a private school in Southwest Portland, both have sky-high exemption rates of 44 percent.

In Multnomah County, there are 153 child care centers and preschools and 43 schools with nonmedical exemption rates of 10 percent or higher. These clusters of unvaccinated kids are at a high risk of preventable disease outbreaks, which can then spread into the larger population, as we saw in the 2015 measles outbreak that began at Disneyland and eventually sickened at least 145 people in eight states. The same could happen in our schools or anywhere like-minded parents meet with their babies and kids, including some of Portland's favorite play spaces and museums.

Given this concern, *PDX Parent* took a look at how legislators, pediatricians, and parents are all working to improve immunization rates for kids in Portland and around Oregon.

AT THE STATE HOUSE

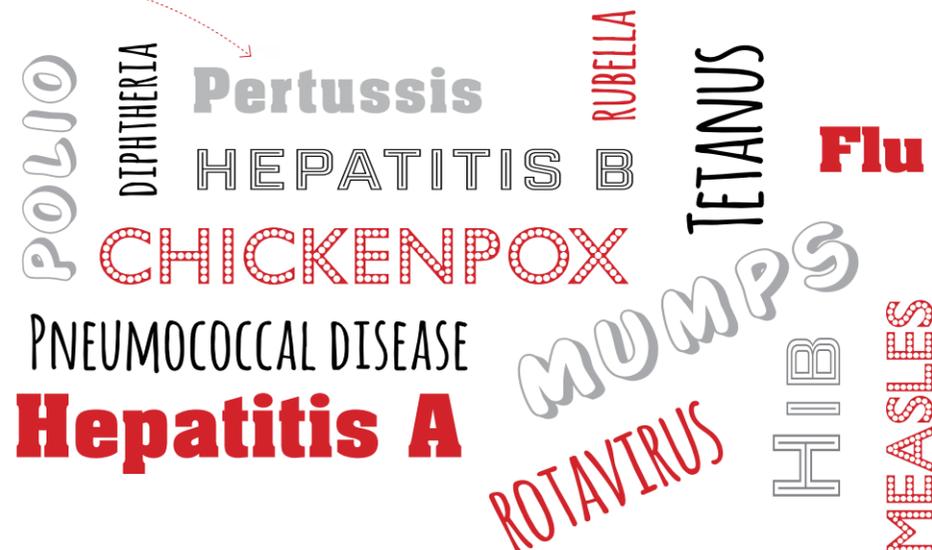
One approach to boosting immunization rates is to strengthen the laws governing shots required for childcare and school attendance.

Before 2014, Oregon parents who wanted to opt out of vaccinating their kids simply had to sign a form before sending them off to school. Now, new laws require parents seeking an exemption to first watch an Oregon Health Authority video about vaccines or have a form signed by a health care provider confirming that they have discussed this decision.

Jay Rosenbloom, M.D., Ph.D., F.A.A.P., a pediatrician at Pediatric Associates of the Northwest in Tigard, helped to draft the legislation. "The goal was to make sure that parents are making an educated decision, that their sources of information included legitimate science. The concern is that when people get their information just through Google, it's hard to be sure that they're making a truly informed choice," he says.

And Rosenbloom thinks that the new law has helped. He's talked with vaccine-hesitant parents who felt more confident about vaccinating after watching the video. In both the state and Multnomah County, there was a small drop in exemption rates in 2015, after the new laws went into effect, but no further drop in 2016. (2017 data wasn't available before press time.)

The new legislation also requires schools to share their immunization rates with parents, and statewide rates are available on the Oregon Health Authority website. Stacy de Assis Matthews, immunization school law coordinator at the OHA, says that her office has received good feedback about this information. For example, parents of medically fragile children who can't be vaccinated can look for child



care centers and schools with high immunization rates. Medical providers talking with vaccine-hesitant parents say the information helps them assess the risks of not vaccinating. If children attend a school with an already low immunization rate, they emphasize to parents that the protection of the vaccine is even more important in a setting at higher risk of outbreaks.

How well is your child's school protected from outbreaks?

Find your school's immunization rates by checking the school or district's website, and then use the table below to see how they compare to community immunity thresholds. If they're below these thresholds, the school is at risk for preventable disease outbreaks.

Disease	About the disease	Community Immunity Threshold	Our Vaccination Rate
MEASLES	Before the vaccine was introduced, 100,000 children were hospitalized and approximately 500 children died from measles each year in the U.S.	95%	
MUMPS	Before the vaccine was introduced, mumps was a major cause of deafness in the U.S. It can also lead to male infertility.	86%	
POLIO	The polio virus can cause temporary or permanent paralysis. While polio has been eliminated from the U.S., it is still endemic elsewhere in the world and is only a plane ride away.	95%	
CHICKENPOX (VARICELLA)	Before the vaccine was introduced, about 10,000 people were hospitalized and 100 people died each year in the U.S. from chickenpox complications.	90%	



Alice Callahan, Ph.D., writes about health and science from her home office in Eugene, where she is constantly interrupted by her two young children.

IN THE CLINIC

Mary Ellen Ulmer, M.D., F.A.A.P., pediatrician at The Portland Clinic's Beaverton office, is frustrated by the low immunization rates and is very clear with new patients that she follows the American Academy of Pediatrics' immunization schedule. But if parents still refuse to fully vaccinate, her practice continues to treat them, in contrast with a small but growing number of pediatricians who are refusing to see unvaccinated kids.

"I don't give up, because I think it's very important, for their child and my kid, who might be sitting behind them on the bus," said Ulmer.

Portland pediatricians also say that they're hearing from more parents who are concerned about unvaccinated children in the waiting room. Erika Meyer, M.D., F.A.A.P., a pediatrician at the Northwest office of Metropolitan Pediatrics, says her clinic asks unvaccinated patients to enter through the back door and not spend time in the waiting room. "We need to be able to tell our kids who have just survived leukemia that they can come into our waiting room, and there's not going to be someone who didn't have their measles vaccine," she said.

Joel Amundson, M.D., F.A.A.P., pediatrician at Dr. Joel's Clinic in Irvington, says he structures his practice so that he has a full hour for well-child checks.

That gives him more time to listen to parents' concerns, vaccine-related and otherwise.

"A lot of my families are concerned about intervention and not wanting to do more intervention than necessary," Amundson said. He tells families that preventing disease with vaccines is a small intervention that can prevent much bigger ones down the road.

But Amundson said he also understands why parents have concerns about vaccines. "There's a vast body of anti-vaccine information out there online and on Facebook that typically people have been exposed to for hours upon hours, over months, if not years, before they come into our office," he said. "If you don't have a medical background, and you see all this, it is extremely convincing, even for a very smart and rational person."

"It turns out, I think vaccination is very much in line with the health goals of almost all the families that I've spoken with, even those who were initially completely opposed to vaccination."

— Dr. Joel Amundson

When Amundson takes the time to answer parents' questions on topics like vaccine ingredients, safety monitoring, and the science behind how they work, he finds that overwhelmingly, parents decide that vaccinating their kids is the right choice for them.

"It turns out, I think vaccination is very much in line with the health goals of almost all the families that I've spoken with, even those who were initially completely opposed to vaccination. It's just that it hasn't been communicated in an empathetic, compassionate way," he said.

GRASSROOTS EFFORTS

One of the newest voices in Oregon's vaccine discussion is Boost Oregon, a parent-led, nonprofit organization started by Nadine Gartner, a Portland lawyer and mom of two, in 2015.

When Gartner's daughter was a baby, they traveled through Portland International Airport, only to find out later that someone with measles had walked through the airport on the same day. Gartner's daughter had just received the measles vaccine, but she knew it could take a couple of weeks for immunity to build. Just like that, she saw how quickly a young child could be exposed to a very serious disease.

Gartner's daughter didn't catch the measles, "but it really got me thinking that parents' choices to vaccinate or not is not the same thing as choosing to cosleep, or choosing to breastfeed for an extended period of time, or choosing cloth diapers over disposable diapers," she said. "The fact that we all live in society together, we take part in this social contract to interact with one another, and in this kind of environment, it is critical for each of us to take responsibility for our health and do what we can to protect ourselves and our neighbors, and vaccination is a key component of that."

Gartner started talking with other parents and reading online information about vaccines, trying to understand why parents were opting out of vaccinating their kids. "I saw what was really happening was an underlying fear of vaccines based on

misinformation, misinformation that they read online and misinformation that was shared among their peers," she said.

She started Boost Oregon in an effort to break that cycle of misinformation, in part by offering free community vaccine workshops. "We present the information in a factual way, without judgement. It's very much a collaborative effort and community affair where people are asking questions, and it's much more of a conversation than a lecture." The workshops are taught by Dr. Amundson, who is also on Boost Oregon's board of directors. In addition, Boost Oregon provides seminars and educational materials for medical providers to help them understand parents' concerns about vaccines and how to effectively address them. (Neither Dr. Amundson nor Boost Oregon receive any funding from pharmaceutical companies for this work.)

The organization also encourages parents to talk to each other about why they value vaccines. Just as we proudly announce on social media when we've voted or volunteered or marched for a cause we believe in, Gartner says that we should be proud that we vaccinate our families. "I want vaccination to have that same sort of effect, that this is a form of civic engagement, that you are doing your part to live in this society by choosing to vaccinate yourself and your children, and I want parents to talk to each other about it," she said. ■

Science-based Sites: Misinformation about vaccines thrives on the internet. The following sites provide factual, evidence-based info:

- chop.edu/centers-programs/vaccine-education-center
- healthychildren.org/English/safety-prevention/immunizations/
- boostoregon.org

PORTLAND PEDIATRICIANS' TOP REASONS TO VACCINATE

Protect your child from illness
Don't be fooled by the idea that anything natural is better. "When it comes to things like meningitis, natural is not healthier. If we can induce immunity without the risk of disease, that is the healthier choice," says Jay Rosenbloom.

Shield the community
"Sometimes parents 'forget' that their child is part of a community. And they're going to enter kindergarten, and there's going to be a child in that class who survived cancer or whose grandparent or parent has no immune system because they have an immunodeficiency or are in chemotherapy," says Erika Meyer. "When we vaccinate our kids, we're also taking care of some of our most vulnerable community members."

Reduce the use of antibiotics and other pharmaceuticals
Take the Hib vaccine, which prevents a bacterial infection that can cause meningitis. Before the vaccine, 1 in 200 kids was infected before kindergarten. In an unvaccinated population, Joel Amundson estimates that treating sick kids would take at least 5,000 times more pharmaceuticals (antibiotics and pain medication) than preventing the disease through vaccination. "What could be more Portland than trying to use the least profit-driven, most naturally occurring products as a community effort to keep our children healthy and thriving, reducing dependency on far more harmful (and profitable) pharmaceuticals?"