

Childhood vaccination exemptions rise in parts of the US

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As more and more parents across the country choose nonmedical

exemptions from vaccinations for their children, doctors and researchers at Baylor College of Medicine and Texas Children's Hospital say the risk of vaccine preventable disease outbreaks is increasing as well.

Their evidence is provided and explained in a Policy Forum article in the latest edition of *PLOS Medicine*.

Nonmedical exemptions from vaccines are based on religious, philosophical or personal beliefs rather than a known medical condition that would prevent a child from receiving a vaccine. As of 2016, 18 states allow for nonmedical exemptions for personal beliefs.

A team of researchers from the National School of Tropical Medicine at Baylor College of Medicine and the Texas Children's Hospital's Center for Vaccine Development analyzed this data and found that, among children enrolling in kindergarten, those with nonmedical exemptions have increased since 2009 in 12 states. The team concluded that this increase is associated with the lower rates of measles, mumps and rubella vaccination coverage.

The researchers identified several metropolitan areas across the country that stand out as "hotspots" of vaccination exemptions, including major metropolitan areas in the Pacific Northwest (Seattle and Spokane), Texas (Houston, Fort Worth, Plano and Austin), Utah (Salt Lake City and Provo) and Arizona (Phoenix), as well as less populated and rural counties in Idaho.

"This weakens herd immunity that protects the population at large, particularly children who are unable to get vaccinated for medical reasons," said Dr. Peter Hotez, professor and dean of the National School of Tropical Medicine at Baylor, and director of the Texas Children's Hospital Center for Vaccine Development.

Hotez and the other authors, Jacqueline K. Olive, Ashish Damania with Baylor and Texas Children's Hospital, and Melissa S. Nolan, assistant professor of epidemiology at the University of South Carolina, all emphasize that vaccination coverage up to 90-95 percent of a population (in this case, children entering kindergarten) is needed to protect children from highly infectious diseases. Hotez cites the 2014-2015 outbreak in Anaheim, California, saying that it was associated with low vaccination coverage and that it led to a ban on nonmedical exemptions in the state.

"Our concern is that the rising [nonmedical exemptions] will stimulate other countries to follow a similar path and put more children and other populations at risk for a number of deadly disease that can be prevented with vaccines," Hotez said.

More information: Olive JK, Hotez PJ, Damania A, Nolan MS (2018) The state of the antivaccine movement in the United States: A focused examination of nonmedical exemptions in states and counties. *PLoS Med* 15(6): e1002578. doi.org/10.1371/journal.pmed.1002578

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