

Neglect of 'science communication environment' puts vaccine acceptance at risk

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The biggest threat to the contribution that childhood vaccines make to societal well-being doesn't come from deficits in public comprehension, distrust of science, or misinformation campaigns, but rather from the failure of governmental and other institutions to use evidence-based strategies to anticipate and avoid recurring threats to the science communication environment—the myriad everyday channels through which the public becomes apprised of decision-relevant science.

This is the thesis of an article published this week in *Science* magazine by Dan M. Kahan, Elizabeth K. Dollard Professor of Law and Professor of Psychology at Yale Law School, and director of the Cultural Cognition Project at Yale Law School, which today released a comprehensive report on public opinion relating to childhood vaccinations generally.

Kahan's article in *Science* uses the controversy over the introduction of the human papilloma virus (HPV) vaccine to illustrate how inattention to the insights from the empirical study of [science communication](#) puts the value of decision-relevant science itself at risk.

In 2006, the Centers for Disease Control (CDC) recommended universal immunization of adolescent girls against HPV—a [sexually transmitted disease](#) that causes cervical cancer, but political opposition blocked proposed legislative mandates for the vaccine in every state but one. Kahan reviews experimental studies that link the controversy to "cultural cognition," the tendency of people with diverse cultural outlooks to fit evidence of risk (in this case the possibility it would promote

promiscuous unprotected sex) to positions publicly identified with their cultural groups.

Those same research methods, Kahan points out in the article, could have been used in advance to forecast and avoid the conditions that triggered these dynamics, which are the same ones that generate persistent conflict over climate change and gun control.

"It was likely inevitable," Kahan writes, "that people of opposing cultural orientations would react divergently to a high-profile campaign to enact legislation mandating vaccination of 11- to 12- year-old girls for a sexually transmitted disease. Yet there was nothing inevitable about the HPV vaccine being publicly introduced in a manner so likely to generate cultural conflict."

By way of comparison, Kahan notes the absence of public controversy over the vaccination for Hepatitis B (HBV). HBV is also a sexually transmitted disease that causes cancer. After the CDC recommended universal childhood HBV vaccination for both boys and girls, states steadily added the vaccine to their mandatory vaccination schedules through regulations issued by professional health administrators.

Childhood vaccination coverage for the HBV vaccine stands at 90%—as it did during the period when HPV mandates were being debated in the legislatures. In contrast, completion of the HPV immunization series now stands at an anemic 33% for adolescent girls, and 7% for boys.

"The unusual conditions under which the HPV vaccine was introduced explains the difference," says Kahan. These included the decision of the FDA to permit Merck, the manufacturer of the HPV vaccine, Gardasil, to seek fast-track approval of a "girls only" version of the vaccine, and Merck's subsequent campaign to induce state legislators to adopt policies mandating the vaccination as a condition of school enrollment.

Those actions, which were motivated by Merck's stake in establishing a dominant market position before a competitor's vaccine could be approved, meant that parents' first exposure to information about the HPV vaccine came from news coverage of a highly charged political debate over a 'mandatory girls only STD shot.' " "If the same procedures for introducing HBV vaccine had been used, parents would have first learned about the HPV vaccine instead from their pediatricians," whose advice, studies showed, parents would have accepted in the absence if the issue had not become politicized.

"Parents do trust their pediatricians on the HBV vaccine," writes Kahan, "which retained coverage of 90% of adolescents during the period when HPV mandates were being debated in state legislatures." " The rate for completing the HPV immunization series now stands at an anemic 33% for adolescent girls, and 7% for boys."

"Many public health experts warned that the HPV vaccine was being introduced in a manner that risked provoking needless and disorienting controversy," Kahan said. "The problem was that there's no mechanism in the FDA or in the federal government generally for focusing attention on and collecting evidence on how the circumstances in which a medicine or other new technology will affect how citizens learn and evaluate information about it."

Kahan also discusses how empirically uninformed risk communication could provoke controversy over other childhood vaccinations as well, a matter that was the focus of the CCP study, a national experimental survey of 2000 U.S. adults.

He singles out a popular theme in the media that "links resistance to childhood vaccination with disbelief in evolution and doubt of climate change as instances of public 'distrust in science.' "

"Vocal critics of mandatory vaccination, while a menace, are small in number and their hostility to vaccines unshared by any recognizable segment of the population," Kahan says. "Positions on evolution and climate change, in contrast, are highly charged symbols of membership in large cultural groups."

"Filling popular discourse with the claim that childhood vaccination is part of the same package of partisan stances as these issues," his article concludes, "needlessly risks provoking the same cultural-cognition dynamics that impeded reasoned public engagement with the [HPV vaccine](#)."

"But the problem isn't media sensationalism," Kahan said. "Uniformed and counterproductive risk communication is the inevitable byproduct of the absence of a systematic, evidence-based alternative."

More information: The polarizing effect of communications that link childhood vaccination to climate change and evolution is one of the issues explored in the Cultural Cognition Project report, which will be available beginning October 3 at:

www.culturalcognition.net/vaccine_risk_perception/

Paper: "A Risky Science Communication Environment for Vaccines," by D.M. Kahan, *Science*, 2013.

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