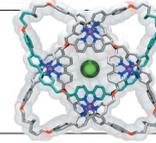


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Stand up for vaccines

A presidential commission on a link between vaccines and autism would legitimize a dangerous and thoroughly debunked argument. Scientists must retaliate with the truth at once.

Critics call Donald Trump unpredictable. “Who knows what he will do next?” has become a popular rhetorical question in US politics. And yet, quite often his actions are entirely predictable. The difficulty comes in comprehending them.

A prime example is last week’s revelation by environmental lawyer Robert F. Kennedy Jr that president-elect Trump may put together a commission to study “vaccine safety and scientific integrity”. (Trump’s team has countered that there are no definite plans to do so.) Kennedy says he would head the commission; he has in the past argued — unconvincingly — that a preservative in some childhood vaccines is linked to autism spectrum disorder, despite abundant evidence to the contrary.

Trump’s embrace of the tiresome and discredited anti-vaccination movement is no secret. He has tweeted and publicly discussed his concerns that childhood vaccines may be linked to autism. He has previously met with like-minded activists, including Andrew Wakefield, a father of the ‘anti-vaxxer’ crusade who has been barred from practising medicine in the United Kingdom for professional misconduct.

Given the people Trump has chosen to listen to, his suggestion of a Kennedy-headed vaccine commission should be no surprise. But it remains difficult to grasp how someone in his position, with unlimited access to the world’s best resources on vaccine safety, would selectively choose to overlook them all: the studies, the commissions, the scientists who have spent a lifetime studying vaccines. What good is another investigation of speculation already so thoroughly analysed and debunked — unless it is being set up to reach a different conclusion? It is a clear waste of money and effort. Much more frustratingly, it fuels an anti-vaccination movement that puts children and elderly people at risk.

Trump surely knows that there is already a federal commission to evaluate vaccine safety. The US Centers for Disease Control and Prevention (CDC) has an Advisory Committee on Immunization Practices that reports to the government on vaccine safety. Vaccines are also regulated by the US Food and Drug Administration — and often have particularly stringent safety requirements because they are used in healthy children.

There is already ample evidence that vaccines do not elevate the risk of autism. A 2015 study of more than 95,000 children found no association between the measles, mumps and rubella vaccine and an increased risk of autism — even among children with a family history of the disorder (A. Jain *et al.* *J. Am. Med. Assoc.* **313**, 1534–1540; 2015). As for Kennedy’s argument about vaccine preservatives, the CDC has repeatedly tried — and failed — to find a link between that preservative, called thimerosal, and autism. In 2004, the US Institute of Medicine reported that a review of the literature had also found no such link (see go.nature.com/2jwe4ba). And in the United States, the argument is now moot: thimerosal was removed from most childhood vaccines administered in the country, as a precautionary measure, beginning in 2001. Autism diagnoses continued unabated.

All the evidence shows that it is actually misconceptions about vaccines — such as those promoted by Trump — that cause serious

harm. The United States has already experienced a series of outbreaks of preventable diseases. In 2014, measles affected 667 people in the country, primarily those who were unvaccinated. The outbreaks are expensive, too: in 2011, it cost public-health institutions up to US\$5.3 million to cope with 16 measles outbreaks that made 107 people ill.

If Trump moves ahead with his vaccine commission, he will give a sense of legitimacy to opponents of childhood vaccination. This could undercut efforts in some states, such as Texas and Michigan, to strengthen vaccination requirements for schoolchildren.

“The commission fuels an anti-vaccination movement that puts children and elderly people at risk.”

In the wake of the news about the commission, the American Medical Association moved to reassert the safety of vaccines. The American Academy of Pediatrics said that it would welcome the chance to discuss vaccine safety with Trump.

Scientists, medics and commentators who have fought vaccine disinformation in the past must take a deep breath and return to the fray. There is no need to wait for this commission to be announced officially. There is no need to wait until it issues its findings. There is no cause to be surprised if it shows little regard for science — or even if it targets scientists who speak out in favour of vaccination. Those who claim a link between vaccines and autism can do so only by discrediting the scientific evidence and, often, the scientists who gathered it. Kennedy’s reference to investigating vaccine safety “and scientific integrity” provides ample warning of what is to come. Scientists should get their retaliation in first. Lives are at stake. ■

The new normal

The ‘ordinary’ science of checking other people’s work is essential to research.

Purists will tell you that science is about what scientists don’t know, which is true but not much of a basis on which to develop new cancer drugs. Hence the importance of knowledge: how crucial this mutation or that cell-surface receptor really is to cancer growth. These are the findings that launch companies and clinical trials — provided, of course, that they have been published in research papers in peer-reviewed journals.

As we report in a News story this week (see page 269), a systematic effort to check some of these findings by repeating an initial five published cancer studies has reported that none could be completely reproduced. The significance of this divergence — how the specific