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BOOK REVIEWS

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Vaccination: Facts Alone Do Not Policy Make

BY ARTHUR CAPLAN

DEADLY CHOICES: HOW THE ANTI-VACCINE MOVEMENT THREATENS US ALL

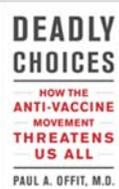
by Paul A. Offit

New York (NY): Basic Books, 2011
288 pp., \$27.50

THE PANIC VIRUS: A TRUE STORY OF MEDICINE, SCIENCE, AND FEAR

by Seth Mnookin

New York (NY): Simon and Schuster, 2011
488 pp.; \$26.99



If biomedical scientists, physicians, or experts in health policy were asked what they base their clinical or policy recommendations on, one would probably hear references to facts, data, evidence, and confirmed findings. Little would be said about values—but they must be at the center of any discussion. These two books make this point clearly.

Evidence-based medicine began as an effort to identify and examine regional variations in clinical practice with the goal of increasing safety and efficacy. The field has evolved into a full-fledged ideological movement that demands that clinical practice and policies rest on solid, objective evidence

for their warrant and reimbursement.¹ Evidence surely is necessary and desirable in trying to decide what to do about health care at the bedside, in the legislature, or in the boardroom. But it is not sufficient.² Nowhere is this more in evidence than in the running battle about vaccination in the United States.

Two recent books lay out the facts about vaccine efficacy and safety. One, *Deadly Choices: How the Anti-Vaccine Movement Threatens Us All*, is by Paul A. Offit, a physician and infectious disease expert at the Children's Hospital of Philadelphia. The other, by writer and editor Seth Mnookin, is *The Panic Virus: A True Story of Medicine, Science, and Fear*.

Offit does yeoman's duty in showing that worries about vaccine safety rest firmly on a vast pile of nonsense, duplicity, hype, and deeply flawed science. He tracks the history of vaccine opposition from its start among the conscientious objectors to smallpox vaccine in Britain in the nineteenth century down to the gaggle of celebrities and media lights who lead the movement today. If you want a solid grasp of the worries, fears, misunderstandings, and ideology that have inspired a small minority of people to vocally oppose vaccination for more than 100 years, Offit's is the book to read.

Both Offit and Mnookin spend a good deal of time reviewing the importance of vaccination for saving lives and preventing disability. The facts are incontrovertibly on their side. However, Mnookin sets himself a somewhat different task than Offit's. Although he is aware of and acknowledges the history that Offit uses to impale today's vaccine opponents, Mnookin seeks to understand why so many well-educated middle- and upper-class families are drawn to the anti-vaccinators' messages.

Mnookin tells the story of Kelly Lacey to illustrate how vaccine hesitancy grows into vaccine rejection:

"Matthew had been born in

March 2003, several years after rumors of a connection between autism and vaccines had begun to gain traction in suburban enclaves around the country. That May, Kelly's chiropractor warned her about the dangers of vaccines. 'He asked if we were going to get [Matthew] vaccinated and I said yes,' Kelly says. 'And then he told me about mercury. He said, "There's mercury in there."' Kelly had already heard rumors that the combined measles-mumps-rubella (MMR) vaccine was dangerous, but this was something new. 'He was really vocal about it causing autism. He said there was this big report over in Europe and blah blah blah. And I thought, Well, I'm surrounded by people who have autistic children. What if this happened to Matthew?'"

Later, when she took Matthew to the pediatrician, Kelly asked her doctor "if she could give me a label that says there's no mercury and she said, "No." She said she wouldn't give it to me.' It was as if...[the] pediatrician was hiding something." Matthew got no vaccines.

Mnookin describes how Matthew wound up near death in a medically induced coma at the University of Pittsburgh, stricken with *Haemophilus influenzae* type b, a vaccine-preventable disease. He recovered. He and his siblings have now had all of their vaccinations.

Telling these stories is very effective, because the main puzzle Mnookin sets out to solve is why reasonably intelligent parents would not want to get their children vaccinated, both for their own sake and for the sake of others. How can it be that, as the journal *Pediatrics* reported last year,³ 25 percent of parents believe that vaccines can cause developmental disorders such as autism in healthy children? It cannot be on the basis of the facts, because the facts about the positive effects of vaccination on human health are as well confirmed and established as anything pertaining to health care.

Let's review: Smallpox caused a minimum of 300 million deaths in the twentieth century. It was a major cause of blindness. It was completely eliminated in 1979, thanks to vaccination.

In the United States, beginning in the early 1900s, annual epidemics of polio occurred with frightening regularity. In 1952, 57,628 cases of polio were reported. That year 3,145 people died, and 21,269 were left with mild to disabling paralysis. In 1955 the first polio vaccine was introduced in the United States. The last case of endemic paralytic polio in the country occurred in 1979.⁴

Who could possibly be against vaccination, given this kind of solidly verified track record? Offit and Mnookin point toward a motley assemblage of suspects: a few fringe doctors, an odd lot of prominent talk-show hosts, a few outspoken celebrities, and thus, probably, a few of your neighbors.

In the fringe-doctor category, Andrew J. Wakefield figures most prominently. He is one reason why the facts seem not to matter to some people.

Wakefield did a "study" that claimed to show a link between the measles-mumps-rubella shot and autism. Offit notes that Wakefield's 1998 paper, in which the supposed autism link appeared, has since been renounced by ten of its thirteen coauthors and that it has been retracted as fraudulent by the *Lancet*, the medical journal that originally published it. A British journalist, Brian Deer, who has devoted himself to tracking down the harm that Wakefield did with this fraudulent report, found that—according to Offit—despite Wakefield's claim in his paper that the twelve children reported on were normal until they had the measles-mumps-rubella shot, five had had previously documented developmental problems. When Deer compared information from the children's parents and from medical records, he also concluded that all of the data in the *Lancet* paper had been altered.

The disgraced Wakefield—no longer a doctor—is the author of *Callous Disregard: Autism and Vaccines—The Truth behind a Tragedy*, published last year. The "callous disregard" part of the title is extremely apt, as he continues to prattle on about the dangers of vaccines. And he continues to leave misery in his wake.

Wakefield, who is now in the United States, spent time over the past year in Minnesota. He was invited there to meet with members of the newly migrated Somali community, who believe they have experienced a growth in autism among their children. Wakefield told them vaccines were likely to be the cause.⁵

As a result, vaccination rates in Minnesota's Somali community have been falling. And as a result of that, in 2011 there was a measles outbreak in Minnesota, with eleven cases reported. The patients ranged from a four-month-old to a thirty-five-year-old. Three of the cases were in unvaccinated Somali children.⁶ The state epidemiologist believes that the root cause of the Minnesota outbreak is an unvaccinated Somali child who recently traveled to Kenya, was infected there, and returned to Minnesota.⁶

In another troubling development throughout the United States, whooping cough (pertussis) is making a rapid and deadly comeback. The first vaccine against whooping cough was developed in the 1930s, and a safer vaccine appeared in 1991. Infants under two months old are too young to be immunized. Children under age six require multiple shots to be fully protected, and after that a booster is needed roughly every ten years. The effectiveness of the vaccine is about 85 percent.⁷ There might be diminishing efficacy in older children, but the vaccine is very effective.⁸ Yet last year California experienced the worst whooping cough outbreak in sixty years. At least ten infants died.⁹ Why?

An analysis of the most current state data on vaccination for whooping cough shows that a little more than half of all people diagnosed with whooping cough in 2010 in California had been immunized.⁸ The data also showed that more than half of all cases were in children age ten and under, with infants less than a year old accounting for 17 percent of cases. Of all children ages 7–10 diagnosed with whooping cough, only slightly more than half were up to date with their immunizations. In San Diego the percentage of kindergarten children entering school whose parents chose not to have them vaccinated increased from 2.3 percent in 2009 to 3.1 percent in 2010.¹⁰

Those who choose not to vaccinate themselves or their children are part of the cause of the resurgence of measles, mumps, rubella, whooping cough, and other infectious diseases in the United States, the United Kingdom, Canada, Japan, and the Netherlands. They are also partly responsible for continuing outbreaks of polio in Africa.

The facts support vaccination. The price of nonvaccination can readily be seen in hospitals and morgues all around this country. Why don't the facts suffice?

In his book, Offit looks to the media as a prime culprit. By giving equal airtime on television shows such as *Oprah* to the likes of actress Jenny McCarthy and other celebrities to inveigh against vaccination, and by treating the facts about vaccine safety as if they were still in dispute, the media foster fear and confusion. Mnookin fingers the media, too. But he also suggests, and I think rightly, that parents—bombarded with mixed messages about the dangers of technology—are more likely to listen to emotional narratives and charged stories than to reasoned evidence about what is right for our children.

Both Offit and Mnookin are partially right in explaining why evidence has not won the day in the vaccination wars. The media, technophobia, irresponsible doctors, and an increasingly risk-averse middle and upper class have all played key roles. There are, however, other reasons why the facts have not commanded the vaccine battlefield, which neither book discusses.

One reason is that the media are not alone in having an interest in promoting fringe and fraudulent views about the dangers of vaccines. Mainstream voices and institutions have been doing a very nice job of undermining the facts, too. Wakefield's bizarre report about a link between autism and a measles-mumps-rubella shot did not appear on the Internet. It ran in the *Lancet*. The paper just might be the flimsiest, most underpowered study supporting a conclusion of monumental importance to appear in a leading peer-reviewed journal in the past fifty years. Physician Bernadine Healy, former director of the National Institutes of Health, is quoted repeatedly and accurately by anti-vaccinators as having serious qualms about vaccine

safety. And when was the last time any medical school devoted a serious amount of time to explaining how to engage worries about vaccine safety, much less the good that vaccines have done?

The prestigious *British Medical Journal* (*BMJ*), which doggedly stayed on the Wakefield case until the *Lancet* cried uncle and retracted the bilious article, recently engaged in some highly dubious fear-mongering. In 2010 it played a key role in fostering fears about the H1N1 (swine influenza) vaccine.¹¹

The idea put forward in *BMJ* was that the World Health Organization promoted vaccination against H1N1 because it was under the Svengali-like influence of scientific advisers on the take from the vaccine manufacturing industry, which was eager to sell its wares. This is preposterous on its face. When H1N1 was deemed very dangerous early on—by all manner of experts all around the world—the only responsible course was to promote vaccine development and vaccination. Yet this major medical journal ran with a tale worthy of the most paranoid denizens of the Web. Anti-vaccine groups gleefully received all of this very mainstream conspiracy theorizing and trumpeted it far and wide.

Public health agencies do not pull their weight in the vaccine wars. Those in charge do not speak out forcefully and vehemently in support of vaccines. In a very odd article in the *Journal of Immunotoxicology*, Helen Ratajczak, a former senior scientist at a drug company, claims to have found a scientific rationale for vaccines' causing autism: genetic defects linked to hypersensitivity, presumably to vaccine components.¹² When the Centers for Disease Control (CDC) was asked by a journalist if it wished to challenge Ratajczak's review, the reply was that a "comprehensive review by CDC...would take quite a bit of time."¹³ That is not the sort of response that bolsters public confidence in the safety of vaccines, particularly as Ratajczak's claims were all over the Internet in a matter of hours.

Another reason is that we have ceded the ethical high ground to the critics. This is in addition to many mainstream voices' abandonment of the good of vaccines and the feeble efforts on the part of

mainstream medicine to engage vaccine critics.

Vaccine hesitators are said to ignore the facts. They fret over the possibility of remote harm or tell one another anecdotal stories that show the dangers of vaccine. Then they invoke their right to choose not to vaccinate.¹⁴ But chastising parents for making poor risk-benefit assessments is not an effective way of motivating them to do otherwise.

Parents try to do the right thing by their kids. Exposing your child to risk is hardly that. What worried parents need to hear is that, as with all things in life, they need to countenance tiny risks to help their children and other children to flourish. A mom who lets her baby kiss the dog or be driven to visit grandma or try new foods that might trigger allergies takes small risks to achieve the goods of having a pet, bonding with family members, and having the joy of gobbling almonds. The moral message that those who favor vaccination need to pair with the evidence is that vaccines are another form of taking a tiny risk to do a world of good.

And for those who see personal choice as the foundation for nonvaccination, choice has its limits—big limits. You cannot kill helpless babies by your choice. You should not end the lives of the frail, elderly, and immunologically vulnerable by your choice. Instead, you should feel a strong duty to protect your neighbors and your community.

If the only moral framework allowed for thinking about vaccines is individual choice combined with avoiding all risk, then the facts about vaccines are doomed. The facts make sense only when set in a context that demands responsible choice in light of the risks you and your family choose to face every day; accountability for choice in terms of the harm your choice does to others; the duty not to be a free rider when so-called herd immunity is a goal; the obligation to act as a moral member of a community; and the requirement that citizens who choose to live among others and to use public facilities have duties not to spread contagion.

It is against this broad values framework that the facts about vaccines gain their power. It is a values framework of prudent choice, responsibility for the consequences of choice, and taking du-

ties to others seriously—all of which needs to be the message of mainstream medicine. It also needs to be at the heart of the response to those who invoke their personal right to choose and selfishly act on fear rather than on sound morals and the facts. Offit's and Mnookin's books get the factual basis absolutely right. Had they gone on to address this values framework, they would have contributed even more to the fight against vaccine ignorance and denial. ■

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