

Anna Kirkland. *Vaccine Court: The Law and Politics of Injury*. New York: New York University Press, 2016. 288 pp. \$40.00 cloth.

Meredith Wadman. *The Vaccine Race: Science, Politics, and the Human Costs of Defeating Disease*. New York: Viking, 2017. 448 pp. \$30.00 cloth.

Thanks to high-profile measles outbreaks, such as the Disneyland outbreak in early 2015 and the 2017 outbreak in Minnesota, and their political responses (including the California legislature's decision to no longer allow personal belief exemptions to vaccines), childhood vaccines have been back on the recent political and policy agenda. There were even reports early in the Trump administration that the White House would create a vaccine safety commission, headed by vaccine critic Robert Kennedy Jr. (such a commission has not been created). Given these notable events, one might be tempted to view the injection of politics into US childhood immunization regimens as a recent phenomenon. However, two recently published books offer meticulous and engrossing evidence to the contrary: vaccines have been political for as long as there have been vaccines. The history of vaccine regulation and of the scientific development of vaccines has revolved around negotiations of power and debates over oversight of government at all levels. Both books should be on the reading list of anyone teaching and doing research in public health politics, for they illuminate the enormous depth of political dynamics and human stories embedded in the vaccination regimen in the United States. They also offer critical lessons for public health policy writ large.

Vaccine Court, Anna Kirkland's thoroughly researched and clearly written book, offers a deep dive into the relatively obscure (to this reader, at least) US Court of Federal Claims that handles vaccine injury cases; the court originated in the 1980s over adverse reactions to the diphtheria-tetanus-pertussis (DTP) vaccine. In detailing the origin and operations of this court, Kirkland presents a case study into how vaccine evidence and social movements have become legalized and legitimated in a particularly American way. When a parent believes a child has been harmed by a vaccine—whether a relatively minor adverse event like dizziness, serious injuries like encephalitis, or controversial claims of autoimmune or neurological disorders—the parent can bring the claim to be heard at the vaccine court, where it undergoes a process of being recognized (or not) and compensated (or not). This sounds deceptively simple, but in fact the entire

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process of adjudicating vaccine injuries involves interpreting what counts as scientific evidence, weighing financial risks and benefits to vaccine manufacturers and the vaccine enterprise as a whole, and controlling what could otherwise become a large and destabilizing social movement. Bringing vaccine injury claims into a no-fault compensation system takes them out of the tort system, where they could cause both financial harm to industry and enormous social harm to public trust in public health.

Telling this story requires access to vast data. Kirkland analyzed over 5,000 pages of hearing transcripts and twenty-seven years of meeting minutes from the committee that oversees the compensation program. While she also conducted interviews with court administrators, she is not able to quote from these interviews, and she was unable to conduct interviews with those from the vaccine-critical movement; she must rely on publicly available sources to describe their activism. And, regrettably, the book does not include any patient perspectives—the claimants themselves—because of privacy restrictions. The story she tells is only in part a story about “anti-vaxxers” and their quest for recognition, although scholars interested in this influential movement will find the history illuminating (particularly chapter 3 on the origins of vaccine-critical organizations and chapter 6 on the autism controversy). And while the legal peculiarities of the vaccine court may seem quite narrow (Kirkland even admits she cannot support extending such a function to other health or social problems), this project offers several lessons for scholars and students of health politics, even those who do not study vaccines.

First, the central argument in chapter 1 (“How Are Vaccines Political?”) is that vaccines are inherently political, as there have always been contested power relationships between individuals concerned with liberty and groups concerned with social welfare, and that our immunization social order would not exist without the regulatory process and the vaccine court at the center of the book. The relationship of politics and vaccines is not episodic (e.g., when a politician like Michele Bachmann interjects her opinions on the safety of the human papilloma virus vaccine into political debate) but long-standing. The political debates at the center of this book are what allow the pharmaceutical industry to continue producing vaccines that are safe and effective for the population. In other words, the contested politics of vaccination injury, undertaken by a very small minority of families, facilitates immunization for the rest of us. This core insight—that politics does not occasionally “interfere” with public health but in fact governs the enterprise as a whole—is critical to understanding public health policy.

A second major insight for me was the book's deconstruction of the conventional wisdom of "science translation," or the knowledge transfer and exchange between scientific producers and users of science. As studies in public policy and the sociology of science have made clear, linear models of science translation, with construction of scientific knowledge on one end and translation to a policy decision on the other, are woefully inadequate. The process surrounding vaccine injuries described in this book further complicates this model by arguing new roles for *science* and *policy* in the vaccine injury context. According to insiders on the court, *science* is defined as knowledge that a vaccine causes a specific adverse event; *policy* is the political, legal, and conflict management goals of the vaccine court (78). The science sometimes informs the policy (by dictating which claims make it onto the Vaccine Injury Table), but other times "off-table" compensations are made when the underlying epidemiology would not hold up under scrutiny, precisely because the policy objective of the vaccine court is to compensate sufficient numbers of people so that they do not join antivaccine movements or file expensive civil lawsuits. While the particulars of this adversarial interplay between science and policy may be distinct to the vaccine court, the book also offers insights about scientific evidence that are relevant to many if not most public health policy debates. As Kirkland argues, "We cannot learn this lesson too many times: scientific evidence, no matter how clear it seems to be to the people who produce it and vouch for it, does not have magical power to change minds" (196).

Vaccine Court also expands our understanding of the core principles undergirding the ethics of vaccination beyond the competing tenets of individual liberty versus community good (e.g., those established in the 1905 *Jacobson vs. Massachusetts Supreme Court* case). Kirkland describes how the American value of personal responsibility—and the absence of a system that emphasizes social responsibility—helps explain the US vaccination system. In particular, the vaccine-critical perspective at the center of the book emerges out of a world view where control over lifestyle, particularly for mothers, is key to health. Kirkland calls this world view "health libertarianism," a concept that applies to other public health issues from nutrition to cancer prevention. For health libertarians, a one-size-fits-all vaccination regimen opposes the animating ideology that mothers ought to be doing everything they can do to advocate for their kids and be responsible for their health. Personal responsibility imperatives also shape the actual process of filing a claim, whereby an individual parent must name and blame a vaccine for the injury. As Kirkland notes, an approach to vaccines that emphasizes social responsibility over vaccine injuries would look very different.

The biggest weakness of *Vaccine Court* is that at the core of vaccine injuries are the pain, uncertainty, and frustration of the parents and children who believe they were harmed, often seriously, yet because of Kirkland's methodology and privacy restrictions, readers never learn their stories firsthand. The presentation of administrative records and knowledge gained from testimony can, admittedly, be dry. Further, as Kirkland herself notes (29), her story is dominated by an elite, white, and privileged group of claimants who interact with the vaccine court. This perspective makes invisible the vaccine concerns of communities of color, such as Somali parents living in Minnesota whose vaccine hesitancy led to the 2017 measles outbreak, the worst in the state since 1990.

Whereas one characteristic of Kirkland's book is its relatively impersonal nature of storytelling, another recent book offers engrossing characterizations of a set of players who get relatively limited attention in *Vaccine Court*: scientists. While *Vaccine Court* describes how the legal process of claims making protects ongoing vaccine production by industry, Meredith Wadman's *The Vaccine Race* describes the origins of industrial vaccine production by detailing how the cells that became the core ingredients of the vaccines we use today were discovered and propagated. *Vaccine Race* provides intimate biographical detail about the scientists developing the precursors for the rubella vaccine in the 1960s, following their progress and the implications of their discoveries to the present era. Wadman humanizes these scientists: they are prideful, determined, jealous, spiteful, often unscrupulous with ethics, and above all, committed to their work. She also profiles with great care some of the people who suffered from illnesses that are now vaccine preventable—particularly babies born with rubella-induced birth defects and children whose lives were ravaged and cut short by rabies. Unlike Kirkland, Wadman does not devote much attention to the vaccine critics that so monopolize public attention to vaccines today. However, as noted below, she presages their concerns in her storytelling.

Wadman centers the experience of one scientist, Leonard Hayflick, describing his early career at the Wistar Institute abutting the University of Pennsylvania campus in the late 1950s and early 1960s through his retirement. She describes his quest to understand human cellular aging; as a consequence, he enables the production of human diploid cells for vaccine development. Since the book is designated for a popular audience, there is no formal section in which Wadman describes her methodological approach. But careful study of the footnotes and acknowledgments reveals that this work is the product of untold hours of interviews, document

review, scrutiny of scientific literature and commentary, and visits to all the locations profiled in this book, especially a small geographic area in West Philadelphia. (As an aside, as someone who spent two years on the University of Pennsylvania campus and walked by the Wistar Institute at 36th and Spruce Street countless times, I found Wadman's detailed description of the campus—including a poignant narrative of a research assistant walking from the institute to the public hospital, now Blockley Hall, to inject premature newborns with experimental polio vaccine—as gripping as any novel.)

In the process of telling Hayflick's story, the book reveals several important themes: scientific competition and the sometimes arbitrary rationales for one scientist gaining favor over others, the unethical and yet commonplace research methods that our twenty-first-century perspective now views as abhorrent, and the rise of commercialization of biomedical products. In the first half of the book, Wadman writes about the “race” to produce rubella vaccine and the debate over whether the vaccine should be made from cells derived from animals (e.g., monkey kidneys, duck embryos) or from human fetal cells. Ultimately, Hayflick's cell line—created from the lungs of an anonymous aborted fetus from Sweden—wins out. This story depicts the incremental pace of scientific development, the huge stakes of decisions made by federal regulators, and the vagaries of the process of so-called scientific consensus (which are as social and political as they are technocratic and evidentiary). Any scholar of medical ethics or public health ethics should learn from and teach about the profiled scientists' cavalier approach toward gaining access to human subjects on whom to experiment with early-stage vaccines, illuminating how profoundly the standards of medical research have changed in a relatively short period of time. The conventional wisdom that scientific scandals in the past were abhorrent yet rare—Tuskegee, Nazi experimentation—is blown apart by this book. Wadman tells story after story of the early vaccine trials conducted without consent in public hospital neonatal intensive care wards on indigent premature newborns, on orphanages and homes for unmarried pregnant women, and on institutionalized adults. These studies were published in the pages of *JAMA* and *Science*, brought esteem and lucrative grant funding to the scientists, and provided the necessary foundation for progress toward approval and production of vaccines that have since prevented numerous deaths and diseases.

The latter chapters of the book describe Dr. Hayflick in the next stage of his career when, spurned by Wistar colleagues and the National Institutes of Health, he stole the cell line he invented (WI-38), drove it along with his

children across the country, and began quietly selling cells for profit after settling into a new position at Stanford. Unlike the flagrant research ethics abuses profiled in early chapters, this commercial behavior—now considered completely ordinary, as universities and the government have adopted policies to encourage such entrepreneurship—was viewed as a scandal by his colleagues at the time. Hayflick faced sanctions and professional scorn. The contrast between these two scientific behaviors—research ethics abuses that were commonly accepted and published in top journals, compared to the firestorm of controversy around selling cell vials at \$35 a pop—offers thoughtful commentary on the evolution of scientific practices and the roles and limitations of voluntary professional oversight and government regulation in driving behavioral norms in science.

In addition to telling a compelling story about scientific progress, Wadman, like Kirkland, also offers insights into the vaccine-hesitant world view that is so relevant to today's vaccine debates. In *The Vaccine Race*, the story of vaccine hesitancy is incidental to, not the major focus of, the book, in contrast to the dominance of vaccine hesitance in today's media discourse about vaccines. After nineteen chapters of rather matter-of-fact detail on the benefits of human cell lines derived from aborted fetal lungs for understanding cell longevity and obtaining a virus-free substrate for vaccine production, it is not until page 265 that Wadman introduces the obvious objections to this practice by the religious Christian community. The religious objection was at first abated by logical argument—that only a single fetus was aborted to produce millions of vaccine units—but the vaccine-hesitant community would later incorporate these concerns in their moral, religious, and personal belief objections to vaccines. Wadman's book also offers helpful context for interpreting Kirkland's book. Specifically, Wadman's historical description of the vaccine injuries produced during vaccine testing and implementation (e.g., mothers getting rubella from weakened viral strains in trials, and the live polio vaccine experience) helped me better understand the orchestrated risk-benefit calculations in the legal regimen that Kirkland describes as so essential to the maintenance of today's vaccine social order. Considered together, both of these books are essential to understand a core theme of public health politics: the shaky, often combustible, but ultimately essential relationship among government, politics, and public health progress.

—Sarah E. Gollust, University of Minnesota

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Sarah E. Gollust is associate professor of health policy and management at the University of Minnesota. She studies the intersections of communication, politics, and health politics. Her research has examined the roles of news media and public opinion within significant health policy issues, including obesity, health disparities, the Affordable Care Act, and cancer screening. Her work has recently been funded by the American Cancer Society and the Robert Wood Johnson Foundation. She is the associate director of the Interdisciplinary Research Leaders, a Robert Wood Johnson Foundation program to support leaders engaged in research to advance health equity. sgollust@umn.edu