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THE MESSAGE OF MEASLES

As public-health officials confront the largest outbreak in the U.S. in decades, they've been fighting as much against dangerous ideas as they have against the disease.

By Nick Paumgarten August 26, 2019

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ne day in the early sixties, Saul Zucker, a pediatrician and anesthesiologist in the Bronx, was treating the child of a New York assemblyman named Alexander Chananau. Amid the stethoscoping and reflex-hammering of a routine checkup, the two men got to talking about polio, which was still a threat to the nation's youth, in spite of the discovery, the previous decade, of a vaccine. At the time, some states had laws requiring the vaccination of schoolchildren, but New York was not one of them. In his office, on the Grand Concourse, Zucker urged Chananau to push such a law, and shortly afterward the

assemblyman introduced a bill in the legislature. The proposal encountered resistance, especially from Christian Scientists, whose faith teaches that disease is a state of mind. (The city's health commissioner opposed the bill as well, writing to Chananau, "We do not like to legislate the things which can be obtained without legislation.") To mollify the dissenters, Chananau and others added a religious exemption; you could forgo vaccination if it violated the principles of your faith. In 1966, the bill passed, 150–2, making New York the first state to have a vaccination law with a religious exemption. By the beginning of this year, forty-six other states had a version of such a provision; it has proved to be an exploitable lever for people who, for reasons that typically have nothing to do with religion, are opposed to vaccination. They are widely, and disdainfully, known as anti-vaxxers.

Saul Zucker died in June, five months short of his hundredth birthday. Less than two weeks later, the New York Legislature voted to remove the religious exemption, after a contentious debate during which anti-vaxxers harangued from the galleries. Governor Andrew Cuomo signed the bill that night. Following all this on a live stream was Howard Zucker, Saul's son. Zucker is a doctor—a pediatrician and an anesthesiologist, like his father, and a cardiologist—as well as a lawyer. He is also New York State's commissioner of health. For more than six months, he'd been at the forefront of an effort to beat back the anti-vaccination movement, as a result of a measles outbreak in the state. Its severity had goaded politicians to change the law, with his support. Because of the success of the anti-vaccination movement, measles cases have since turned up in twenty-nine other states, but New York has had by far the most cases: 1,046 as of last week, out of a national total of 1,203. This has threatened to wind back decades of success in the containment of the disease since the first measles vaccines were introduced, in 1963—an era when the United States saw between three million

and four million cases a year. In 2000, the U.S. declared that measles had been eliminated in the country; if this outbreak isn't contained by October, it could jeopardize the nation's so-called measles-elimination status. This would be a dire step back for our public-health system, and a national embarrassment. (Britain, well acquainted with national embarrassment, lost its elimination status this year.)

The outbreak began last October, in the Rockland County village of New Square, an enclave of roughly eighty-five hundred Hasidim founded in 1954, on an old dairy farm, by Grand Rabbi Yaakov Yosef Twersky and his followers, who had moved there from Williamsburg, Brooklyn. (Like the many other ultra-Orthodox hamlets that have sprouted up in the area, it is technically in the town of Ramapo.) Twersky's sect originated in the Ukrainian town of Skvire; when the village in New York was incorporated, Skvire became "Square." His son David Twersky, who has been the Grand Rabbi since 1968, lives in a house that abuts the New Square synagogue. On religious holidays, Skvire Hasidim come from all over the world—New Square has fifteen sister cities—to worship with him. Although you wouldn't be wrong to say that New Square is a small, insular monoculture, in epidemiological terms it has the characteristics of an international city.

One such traveller, a fourteen-year-old boy from Israel, became Patient Zero in the state's largest measles outbreak since 1992. On October 1st, in observance of Simchat Torah, he attended services at the synagogue, for the fifth time in four days. The shul is more than twenty-two thousand square feet and holds seven thousand people, and the bleachers that ring the inside of the building from floor to ceiling were full, as was the gallery upstairs, where the women sit. Feeling ill, the boy left the synagogue and walked up the hill with his father to the Refuah Health Center, which has been delivering medical services to the

community since 1993. Most of the clinicians there had never seen a measles case, but they had observed, for a decade, the growth, among their patients, of misgivings toward vaccines. The boy had the telltale rash. Refuah administrators, even before the blood work had come back, notified the county department of health, which advised them to isolate the patient and shut down the health center.

It wasn't hard to determine where the measles had come from. The boy had caught it in Israel. The theory was that he'd got it from another Israeli, who had travelled to the city of Uman, in Ukraine, for the Rosh Hashanah pilgrimage known as the Hasidic Burning Man. Because of a low vaccination rate, there have been more than fifty thousand cases of measles in Ukraine in the past year. Patient Zero had not been fully vaccinated, but not because of any objection on his parents' part. In Israel, which is experiencing a measles outbreak of its own, vaccinations are administered in school, and, according to a patient advocate at Refuah, on the day the boy's classmates had received their shots for measles, mumps, and rubella (known as M.M.R.) he was home sick. The boy's twin brother, and the rest of his family, had been vaccinated.

It was harder to figure out, in a necessarily timely manner, who'd been exposed. The state and county health departments sent a pair of epidemiologists to New Square—both of them male, out of deference to Hasidic customs of gender separation. The state's man was Robert McDonald, a doctor and Epidemic Intelligence Service officer from the Centers for Disease Control and Prevention, who had embedded with the state for two years and had, with Zucker and others in the health department, dealt with various recent crises, such as drug-resistant fungus and a hepatitis-C outbreak. McDonald began working on a so-called line list of anyone who might have shared airspace with the boy. He started at the synagogue, where he was greeted by Yitzchok

Sternberg, a rabbi with the Khal Mishkan Yosef congregation, whose wife, Chanie Sternberg, is the C.E.O. of Refuah. McDonald drew a map of the interior of the synagogue and set about learning where the boy had been and when, and who else might have been there, too.

Earlier this summer, I visited the New Square synagogue with Rabbi Sternberg, a wry and genial fifty-eight-year-old with a reddish beard. The interior of the shul features arched windows, chandeliers, and a linoleum floor. Rows of tables and plastic chairs face an ornate wooden pulpit, or bimah. (A new, much bigger temple is being built on an adjacent lot. "The day we drove in the last nail on this one, it was too small," Sternberg said.) Morning prayers were winding down; Rabbi Twersky's grandson had got married there the night before.

"Bobby McDonald was able to ascertain exactly where we would need to suspect that potentially contagious people had gone and come from," Sternberg told me. "'O.K., he was standing over there? What was his path? He went from that door to that door? Who was standing here, who was standing there?' "The boy had been halfway up the bleachers just to the right of the bimah. Sternberg indicated the path the boy had taken to the door.

VIDEO FROM THE NEW YORKER

The Quest for the Perfect Crossword Clue

McDonald and his counterpart from the county set out to reach everyone who might have been exposed. The task was complicated by the religious holiday; the congregants, and a lot of the other passengers on the boy's flight from Israel, weren't answering their phones. But, as soon as the holiday was over, the officials managed to inform those who were at risk and to establish, for the most part, who among them had been vaccinated. The vaccination records, especially among people from the era of paper files, were far from perfect. For every new case of measles, public-health workers have to engage in these painstaking forensics; it's a little like working dozens of murders at once.

"We had no idea what to expect," Sternberg said, referring to the number of transmissions. "We were afraid it would be in the hundreds. The day it happened, no one knew anything." Synagogue members, ignorant of how the virus works, had the whole building scrubbed. "They took the towels off the racks and changed the water in the ritual bath. Not a bad idea anyway, but all this had nothing to do with measles."

Measles, often called the most contagious disease on earth, is an airborne virus. If a person with measles walks into a room, the pathogens can linger there for two hours after the person has gone. In the New Square shul, this meant that as many as seven thousand people had shared airspace with the young man from Israel. It was fortunate that the room was so big and even, perhaps, that the women (and their small children) were in the balcony, away from the men and Patient Zero; pregnant women and small children are at the greatest risk. Still, McDonald told me, "people are very close. A cough or a sneeze by someone higher up in the bleachers would have the opportunity to dispense to a great number of people."

Almost everyone who contracts measles exhibits symptoms; this is not the case with, say, polio, a disease in which three out of four people don't show any symptoms at all. "The measles vaccine really works, and the virus finds those who are unprotected, either because they haven't been vaccinated or because they don't have immunity from a prior measles infection," Bruce Gellin, the president of global immunization at the Sabin Vaccine Institute, in Washington, D.C., told me. "So you can see it spreading. You can see where you're vulnerable, on a mass scale." It's a little like sticking a punctured tire in a barrel of water. Measles finds the leak.

The measles virus is a piece of RNA coated with a lipid. It's fewer than ten genes long. ("Measle" is derived from an old German and Dutch word for a spot or pustule on the skin.) "Measles is unmatched, in terms of its effectiveness as a contagion," Adam Ratner, the head of the Division of Pediatric Infectious Diseases at N.Y.U. Langone, said. A single person can infect more than a dozen others. The virus is infectious even before the appearance of the rash, during which the symptoms can be fever and the "three Cs": cough, coryza (runny nose), and conjunctivitis. The vast majority of measles cases turn out O.K.—a

fortnight of misery—but bad things can and do happen. It isn't Ebola, but it isn't chicken pox, either. (That said, it has killed more people in the Democratic Republic of the Congo this year than Ebola has.) The rate of hospitalization is about one in five, mostly owing to pneumonia, and the mortality rate is about one in a thousand. (In developing countries, it is more like one in a hundred.) Measles may also have a suppressive effect on the immune system for two years—"the shadow of measles," as I heard one doctor describe it. The disease can cause hearing loss and, in rare cases, five to ten years later, a usually fatal form of encephalitis. Its prevalence, before the development of the vaccine, made it a scourge. Pretty much everyone got it. Its virtual disappearance since has made it seem like an abstraction, one of those common experiences of yesteryear that old-timers think kids today are too coddled to abide, like schoolyard fistfights, helmetless cycling, and child labor.

"Some people seem to think measles is some happy Norman Rockwell rite of passage for American youth," Howard Zucker told me. A popular long-standing anti-vax meme depicts a clip of Marcia Brady, in a 1969 episode of "The Brady Bunch," declaring, "If you have to get sick, sure can't beat the measles!" Parents who might agree sometimes throw so-called measles parties, to get it over with for as many kids as possible, as soon as possible. What was once a folksy response to inevitable exposure now carries a hint of Munchausen by proxy.

On October 9th, a second case turned up in New Square: a fifty-six-year-old man returning from a trip to Israel. On October 12th, another: a four-year-old who had travelled to Israel. That same day, there was a fourth, the first domestic transmission, a two-year-old linked to Patient Zero. During the next four days, there were six new cases that were linked to the first one from the New Square shul. (In all, there would be at least eleven cases connected to the boy.) Soon the authorities had identified five other cases involving unvaccinated people who'd

travelled to Israel. Then measles started turning up elsewhere: New Jersey, Texas, California. In April, Zucker told me, city officials had been tracking the movements of a man who had gone from New York to Detroit, infecting thirtynine people in Michigan.

The global count of measles cases, which had been declining steeply during this century's first fifteen years, is rising again; the first six months of 2019 saw more than any full year since 2006, according to a report by the World Health Organization. Since the recent outbreak, New York State has reported 392 cases —this does not include 654 cases in New York City—of which 296 were in Rockland County, almost all of them in Orthodox enclaves with low rates of vaccination. A 2017-18 survey indicated that the measles-vaccination rate for children in the state, before entering kindergarten, was more than ninety-seven per cent, but, in pockets of anti-vaccination sentiment, or of widespread vaccine hesitancy, as the more gray-shaded kind of reluctance is called, the numbers had fallen far enough to compromise what epidemiologists call herd immunity—that is, broad enough protection to cover even for the tiny minority who, for whatever reason, aren't vaccinated. (Scientists typically say that a ninety-five-per-cent vaccination rate does the trick.) In some schools in neighborhoods where the outbreak had gained a toehold, the vaccination rate had dropped below fifty per cent. For public-health officials like Zucker, measles was a clear and present concern on its own, but, more significant, it was a leading indicator of a societal failure. Mark Mulligan, the director of the Vaccine Center at N.Y.U. Langone, said, "This outbreak is the eyes of the hippopotamus."

ne need not relitigate the case for vaccines here. There have been more than a dozen large-scale, peer-reviewed studies—the most recent one in Denmark, involving more than six hundred and fifty thousand children—that have found no connection between the M.M.R. vaccine and autism. Are there

side effects to vaccines? Sometimes. Are there bad doses or batches? If there weren't, there would be no such thing as the National Vaccine Injury Compensation Program. Does Big Pharma benefit from the vaccine protocol? You bet. At the end of July, Merck, the only U.S. manufacturer of the M.M.R. vaccine, announced that it had earned six hundred and seventy-five million dollars in the previous quarter from the M.M.R. vaccine and the chicken-pox vaccine, a fifty-eight-per-cent increase from the same period last year.

But vaccines work, both for individuals and for the general public. They are one of the great advances of modern times. And they do not cause autism. The science on this point is settled, to the extent that any science ever is, in the pursuit of proving a negative.

Four years ago, after a measles outbreak at Disneyland, the California legislature got rid of religious and "personal belief" exemptions to the state's vaccine law, leaving only medical ones. One precedent was the landmark Supreme Court ruling Jacobson v. Massachusetts, from 1905, concerning vaccinations for smallpox. It established the right of the state to enforce "restraints to which every person is necessarily subject for the common good." Jacobson has been the basis for a raft of court decisions through the years upholding mandatory vaccination. Of course, the Supreme Court also cited it in its 1927 decision to let stand a program of forced sterilization in Virginia. ("Three generations of imbeciles are enough," Justice Oliver Wendell Holmes, Jr., wrote.)

In California, after the removal of the religious exemption, the rate of vaccination rose, from ninety per cent to ninety-six per cent. But so did the incidence of doctors selling bogus medical exemptions. Zucker recognizes a cautionary tale; the church-and-clinic scam is a bit of a revolving door. Sixteen years ago, Donald G. McNeil, Jr., a health correspondent for the *Times*, wrote

about joining a church in New Jersey (the headline read "worship optional") that had been founded by chiropractors to aid the flock in skipping out on shots.

The measles outbreak has helped clarify for many public-health professionals that the virus they're fighting isn't so much measles as it is vaccine hesitancy and refusal. With the spread of mass shootings and conspiracy theories like QAnon, we are becoming more comfortable with the concept that ideas behave like viruses. This pandemic's Patient Zero is harder to pinpoint. Suspicion of authority, rejection of expertise, a fracturing of factual consensus, the old question of individual liberty versus the common good, the checkered history of medical experimentation (see: Tuskegee, Henrietta Lacks, Mengele), the cynicism of the pharmaceutical industry, the periodic laxity of its regulators, the overriding power of parental love, the worry and suggestibility it engenders, and the media, both old and new, that feed on it—there are a host of factors and trends that have encouraged the spread of anti-vaccination sentiment.

But, if we have to pick a Patient Zero, Andrew Wakefield will do. Wakefield is the British gastroenterologist who produced the notorious article, published in *The Lancet* in 1998, linking the M.M.R. vaccine to autism. The study, which featured just twelve subjects, was debunked, the article was pulled, and Wakefield lost his license to practice medicine—as well as his reputation, in scientific circles anyway. But, owing to his persistence in the years since, his discredited allegations have spread like mold. In the anti-vaxxer pantheon, he is martyr and saint. There are also the movement's celebrities, such as Jenny McCarthy and Robert F. Kennedy, Jr., stubborn in the face of ridicule, and the lesser-known but perhaps no less pernicious YouTube evangelists, such as Toni Bark, a purveyor of homeopathic products, and the Long Island pediatrician Lawrence Palevsky. If your general practitioner is Dr. Google, you can find a universe of phony expertise. The movement seems to sniff out susceptibility. Not surprisingly, there

is money there, though the financial incentives behind this strand of advocacy are less clear than, say, what has led the Koch brothers to champion fossil fuels. This spring, the Washington *Post* reported that the New York hedge-fund manager Bernard Selz and his wife, Lisa, have given more than three million dollars to anti-vaccination causes and helped finance "Vaxxed," Wakefield's 2016 documentary, which purports to reveal a C.D.C. conspiracy to cover up the connection between vaccines and autism. Needless to say, the anti-vaccination ethos is by no means exclusive to the New York tristate-area Orthodox community. It thrives in certain pockets—affluent boho-yoga moms, evangelical Christians, Area 51 insurgents. The vaccination rates are about the same in Monsey and in Malibu. Before New Square, the three most recent big outbreaks of measles occurred among Somali immigrants, in Minnesota; Amish farmers, in Ohio; and a hodgepodge of visitors to Disneyland.

"It's shocking how strong the anti-vax movement is," Zucker said. "What surprises me is the really educated people who are passionately against vaccinations. I see this as part of a larger war against science-based reality. We need to study vaccine hesitancy as a disease." He gave a TEDX talk recently about the crippling disconnect between the speed at which information, good or bad, spreads now and the slow, grinding pace of public-health work. He managed, by way of the general theory of relativity, to establish the equivalence of H1N1, Chewbacca Mask Lady, and Pizzagate: "How do we immunize and protect ourselves from the damaging effects of virality?"

People often talk about the anti-vaccination movement as a social-media phenomenon, but in the ultra-Orthodox community, where women are discouraged from using computers and smartphones, it has apparently spread mostly among mothers by word of mouth, through phone trees, leaflets, and gatherings: still viral, but analog. "It's more about social networks than social

media," Gellin, of the Sabin Vaccine Institute, said. A few years ago, a slick pamphlet called "The Vaccine Safety Handbook: An Informed Parent's Guide" became ubiquitous in Hasidic enclaves of Brooklyn. It had been produced by an organization called PEACH, or Parents Educating and Advocating for Children's Health. (The identity of the parents behind it has been a well-guarded secret, although Wired recently published a story about "Chany"—her surname was withheld—a Hasidic mother in Borough Park who was its purported founder; she'd got her information from the Internet.) The pamphlet expressed alarm that, among other things, some vaccines might contain trace amounts of monkey kidneys, rabbit brains, pork products, and aborted fetuses. Definitely not kosher. Rabbis pointed out that this claim wouldn't matter, since one does not eat a vaccine. But the M.M.R. vaccine doesn't contain those things. Even the smidgen of each virus it contains is so slight as to be negligible. "We're talking two hundred to three hundred antigens," Mulligan, of N.Y.U. Langone, said. "That's minuscule, compared to the microbiota we deal with on a daily basis." (Roald Dahl, whose eldest daughter, Olivia, died from measles, once wrote, "I should think there would be more chance of your child choking to death on a chocolate bar than of becoming seriously ill from a measles immunisation.")

Elisa Sobo, a medical anthropologist at San Diego State University, has advanced the idea that saying no to vaccinations is as much an opting in as it is an opting out—"like getting a gang tattoo, slipping on a wedding ring, or bingewatching a popular streamed TV show," she writes, in a recent paper, "Theorizing (Vaccine) Refusal." "This kind of refusal is more about who one is and with whom one identifies than who one isn't or whom one opposes." You could say that many of the parents who send their children to Waldorf private schools and choose not to vaccinate them—for example, at Green Meadow, a Waldorf school whose immunization rate was so low that Rockland County

officials banned unvaccinated students from attending—are declaring an allegiance to an ethos, or even bowing to peer pressure. They're going with a different flow, even if it's the one that says measles can be prevented by breast milk and bone broth. The *Hollywood Reporter* found that the rates of vaccination in some of the private schools in Santa Monica and Beverly Hills—Marianne Williamson country—are roughly the same as in Chad and South Sudan. Last year, at the Westside Waldorf School, in the Pacific Palisades, about four in ten kindergartners were fully vaccinated. At the Garden of Angels School, in Santa Monica, about half were. "We perceive each growing child as a precious cluster of unique treasure," the school's Web site reads. "Our Garden Ideology aspires to accurately mirror an environment where students are limited by nothing and liberated by everything." Nothing says liberation like pertussis.

In May, there was an ultra-Orthodox anti-vaccination "symposium" in a ballroom in Monsey—men and women separated by a makeshift wall, Wakefield present via Skype. A Satmar rabbi, Hillel Handler, stood and suggested that the measles outbreak was an anti-Hasidic conspiracy concocted by Mayor Bill de Blasio, as a cover for diseases imported by Central American immigrants. Others equated what they called "forced vaccination" with the Holocaust.

A representative of the Church of Scientology offered logistical help. The state's director of epidemiology, Debra Blog, sat quietly near the front of the women's section, but after a while, dismayed by the rhetoric of what McDonald, of the C.D.C., had taken to calling "the pro-measles movement," she left. "I knew it was going to be bad, but not this bad," she told me. "The speakers were terrible. I realized that if I got up to say something I was going to get hauled out of there."

By then, the health departments of the state and the relevant counties were deep into what you might call a counter-insurgency campaign. There had been emergency declarations, and decrees prohibiting unvaccinated children from attending school, no matter their parents' beliefs. The repeal of the religious exemption was progressing in the legislature. In the most affected counties outside the city, the number of new vaccinations was up seventy per cent compared with the year before. Zucker had recorded a public-service announcement in a playground. The city had launched a campaign called "Don't Wait. Vaccinate." Rabbis, almost unanimously, said that there was no religious reason not to vaccinate.

In the health establishment, it is now standard practice to differentiate between diehard refuseniks and the vaccine-hesitant, and even to acknowledge that the former aren't really persuadable. Chanie Sternberg, the Refuah C.E.O., said, "Those who don't want to learn do not." The latter are the softer target: the yesbut set, whose heads are aswirl with contradictory information, and who really want nothing more than for their children to be healthy and safe. Vaccination has been the victim of its own success. Eradication has afforded these parents the luxury of equivocation. People have forgotten how dangerous these diseases were and, in the absence of reminders, have become complacent, giving in to what one doctor called "immunological amnesia."

An outbreak is a fine bracer. Public-health officials have seized on this one as an occasion both to reach out to the hesitant and to reconsider their tactics of persuasion: the dreary work of winning hearts and minds. Patricia Ruppert, the Rockland County health commissioner, told me, of the vaccine-hesitant mothers she'd encountered, "They're not as interested in the science as they are in the stories."

At Mount Sinai Hospital one day in June, during Zucker's grand rounds there, Chanie Sternberg and Corinna Manini, the chief medical officer at Refuah, gave a presentation to an auditorium of physicians about the so-called motivational-interview technique, a less combative and less condescending way of fielding patients' concerns and presenting the justifications for vaccines. Don't overwhelm them with data. Address their stated concerns, one at a time. "I strongly recommend" rather than "You'd be stupid not to." Have the recommendation gently reiterated by everyone along the way: receptionists, nurses, pharmacists, home-care workers. "Drop the pamphlets," Sternberg said. Common sense helps. When a mother protests that her child has a cold and that the vaccine shot might just make things worse, Sternberg says, "The baby's cranky anyway, so you might as well get it over with."

PROFILES BOOKS BOOKS BOOKS BOOKS The Survival of Iggy Pop Nell Zink's Satire Raises the Every Stakes Ask / Comp By Madeleine Schwartz By He

It was Sternberg who, early on, helped connect Zucker and his department to the rabbinical leaders in Rockland County, to smooth the exchange of information and promote the vaccination drive. Several times during the fall, Zucker met with the rabbis, in groups of thirty to forty. Obviously, though, they weren't the ones taking the kids to the doctor. "My cousins lived up there for a while," Zucker said. "I asked them, 'What should we do?' They said, 'Talk to the moms.' At the end of the day, the moms don't want their kids to get sick."

The Refuah Health Center is just down the road from the Ateres Charna Wedding Hall, not far from the Palisades Parkway. The center was founded three decades ago, after Governor Mario Cuomo urged the local grandees to find a way to provide health services for the burgeoning Orthodox population. (New Square, it should be noted, votes almost entirely as a bloc; Hillary Clinton got more than ninety-five per cent of the vote there in her Senate races and in 2016. It should also be noted that, in 2001, Bill Clinton commuted the sentences of four New Square men who had been convicted of defrauding the government in a fake-yeshiva scheme.)

"When I joined Refuah, it was just a concept, a pile of papers, an application for a license," Chanie Sternberg said. When Refuah opened, in 1993, it expected fifteen thousand visits per year. The number, in year one, was twice that, and this year it will top three hundred thousand. It began as a primary-care facility, but it's now four stories high and delivers a wide array of services, including optometry, dentistry, and gynecology. Refuah is a nonprofit operation, despite a rumor I heard, in Monsey, that it was pushing vaccines in order to make money. Of the twenty-seven thousand M.M.R. vaccines that have been administered in Rockland County since October 1st, six thousand have been delivered by Refuah. One of them was mine. I was born after the first measles vaccine was developed, in 1963, but before the two-shot protocol came along, in 1989. (Now children typically get the first shot around the age of one and the second around age four.) So it's possible that I had been undervaccinated, all these years. While I was talking to Sternberg, a nurse came in and gave me a booster.

Sternberg was born in 1964, in the wake of an infamous epidemic of rubella, or

German measles. "My mother told me stories about it, about staying home for nine months while she was pregnant with me," she said. "A lot of my classmates had hearing loss." She grew up in Borough Park, Brooklyn (her father, from Czechoslovakia, had been a follower of the elder Twersky), and after she and Yitzchok were married, in 1984, they moved to Lakewood, New Jersey, and then to Monsey, in 1988. Before coming to Refuah, she'd worked at Nyack Hospital, in the medical-records department. Like most Orthodox wives, she wears a black wig and modest dark clothing, but something about her quick, quiet way of stating things put me in mind of Nora Charles.

Nearly twenty per cent of the population of New Square is under the age of five, a cohort that is especially vulnerable to measles, owing to the spacing of the regimen of shots. Large families with lots of small children, and a culture prone to large social gatherings, are vulnerable during measles outbreaks. "That's why we can't afford to have even a slight delay in the vaccination schedule," Sternberg said.

In May, Zucker gave the commencement address at the Colin Powell School for Civic and Global Leadership, at City College. Powell was there, as was Zucker's wife of three years, Elissa, who is forty and had given birth to their second child two months before, affording Zucker the rare experience of being the father of a newborn and the son of a ninety-nine-year-old. (It was short-lived; Saul Zucker died a few days later.) Zucker, sixty in September, is slight of build and rubbery in his movements and has a big toothy grin and a puckish air. In his cap and gown, he looked whatever the opposite of donnish is. From the dais, he started his speech by talking about his father, who had graduated from City College almost eight decades before, and he closed with some remarks about the polio vaccine. The graduates in the first few rows mostly chattered and showed one another things on their phones.

Born in the Bronx, with the umbilical cord wrapped twice around his neck, and delivered (and resuscitated) by his father at the Fitch Sanitarium, Zucker did not speak a word until he was four years old. But he soon revealed himself as something of a dervish and an odd kind of prodigy. At age six, on his way home from a Chinese restaurant, he tripped on the sidewalk and broke his chopsticks and his fortune cookie, and wrote Mayor John Lindsay to complain. By age eight, he was peppering dozens of public figures (Nelson Rockefeller, Richard Nixon, J. Edgar Hoover, a representative for the Communist Party) with earnest letters asking for keepsakes and information. He has kept their replies. (From Hoover: "I am unable to furnish you information regarding persons we are looking for since this is given mainly to police officers.") With dreams of being an architect—medicine seemed untenable, because he passed out at the sight of blood—Zucker also solicited (and usually got) from builders and government agencies the plans for such structures as the World Trade Center, the Superdome, the Sears Tower, the George Washington Bridge, and the Holland Tunnel, and also drew up blueprints for his father's new office, with a circular staircase and a giant fish tank. His innocent query to an architecture firm about a construction project in Fort Lee, New Jersey, eventually facilitated a federal investigation into the Mafia in Paramus, which made the national news.

Zucker graduated from high school at the age of fifteen, from college at nineteen, and from medical school at twenty-two, at which time he was told by the dean that he was the country's youngest doctor. Some years later, he came to suspect, on the basis of an interview he'd done as a resident at the Philadelphia Children's Hospital, that he was the inspiration for the television program "Doogie Howser, M.D.," about a teen-age physician. (A few years ago, after this became an Albany tale, Steven Bochco, the show's co-creator, denied it.) Doogie Howser, anyway, is what he came to be called around the ward in Boston, once

the show débuted. He is an odd combination of child and old man, the latent proportion of the one increasing to account for the preponderance of the actual other. Colleagues have attributed his knack for pediatrics to his seeing the world through a child's eyes. As the head of pediatric critical care at Columbia Presbyterian, he led the building of a new I.C.U., starting with brightly colored train-track tiles on the ceiling, because he realized that it would be the first thing children see when they awaken after surgery.

Zucker's C.V. is forty-two pages long, single-spaced. Five degrees and a halfdozen board certifications, stints with the World Health Organization (as the assistant director general) and before that in the George W. Bush White House, ultimately as a Deputy Assistant Secretary of Health under Tommy Thompson. Highlights of his time in Washington were his creation of the Medical Reserve Corps and some headway in efforts to advance women's health care in Afghanistan. Lowlights were SARS, anthrax, and drawing the short straw to represent the Bush Administration at a conference in Argentina on health and the environment, at a time when the White House was impeding research into climate change: "I went there basically to get yelled at." Yeshiva, Georgetown, Mass General, Harvard, Columbia, Penn, M.I.T., Yale, Johns Hopkins. Committees, lectures, fellowships, awards, articles, societies, appointments, panels, and boards. The C.V. does not mention that he has met all twelve men who have walked on the moon and that he can recite the entire touchdown exchange between Neil Armstrong and Mission Control. Zucker is more amazed than boastful. He speaks quickly, in what you might call an excitable mumble, ending many spiels in "you know what I mean?"

"Taking care of sick kids really centers you, you know what I mean?" He often talks about children he has treated, the ones who narrowly avoided death, many of whom he has stayed in touch with—a wedding here, a bar mitzvah there. I got

to know him through a friend of mine whose toddler nearly died of a congenital heart defect. Zucker saved the boy's life. Eighteen years later, Zucker and the father remain friends.

When I first met Zucker, he began to talk about all the things that a health commissioner does. In his speed-mumble, he ticked off threats that his department had faced: Ebola, Legionnaires', Zika, Lyme, flu, Candida auris. Opioids. Water safety. He has a particular preoccupation with geriatrics and the aging-population problem. There are random responsibilities: last summer, Zucker had to cancel a rock concert in Watkins Glen, because of the threat of storms. "Someone came to me and said, 'I think we need to cancel fish.' Why is that my problem?' I said. 'Why do I have to worry about fish? Shouldn't that be the D.E.C.?' 'Not fish. P-H-I-S-H.' I hadn't heard of this Phish." He has never tasted coffee, tobacco, or pot, although he oversees the state's new medicalmarijuana program, and his department, in conjunction with others, has issued a report in favor of the legalization of recreational marijuana. (When Zucker announced this, during New York's gubernatorial campaign last year, a spokeswoman for Marc Molinaro, Andrew Cuomo's Republican opponent, accused the Governor of having "his hand-picked 'Doogie Howser' rubber stamp another decision that has less to do with science and everything to do with politics.") Zucker got similar flak when he concluded, five years ago, that fracking was a public-health threat, a finding that led Cuomo to ban it.

"I don't think most people realize the role that 'public health' plays in their lives," Zucker said. "The public has such a negative feeling generally about government."

E arly in the summer, Zucker and some of the medical staff of the state and county health departments spent a day checking in on a few summer

camps in Sullivan County, a rural area on the southwest flank of the Catskills—the old Borscht Belt. The children come mostly from Brooklyn and counties closer to New York City. The Sullivan County health department had issued a rule requiring every child to have proof of immunity before being allowed on the grounds of a camp. Zucker and his team wanted to check in on the camps' compliance and to field questions and concerns. Zucker drove up from Riverdale, where he lives in an apartment with his wife and two kids. (He also has an apartment in Albany, where he spends a good deal of the week.) He had a brand-new red Volvo wagon, which he, a longtime car nut, considered a regrettable concession to fatherhood. He'd brought scones for the ride. He feigned nonchalance as we christened the interior with crumbs.

The state health department's office in Sullivan County is in back of a small, rundown office park in the town of Monticello. The state had loaned the county some staff, as measles reinforcements, since Sullivan's health budget was lean. Zucker was greeted in the parking lot by an associate commissioner, Celeste Johnson: "Welcome to paradise."

He was led into a small office for a briefing with a half-dozen staffers. Eleanor Adams, a state epidemiologist, said, "Howard and I go back to Ebola."

They were monitoring several possible new measles cases: young children, and a mother with a sick child who had been turned away from her job working at a summer camp, and whose whereabouts were now unknown. Health officials were afraid that she might be staying in a so-called bungalow colony, where families live in close proximity. The camps, being licensed, have to abide by state vaccination regulations. "You can make sure the camps, the schools, the hospitals, and the clinics are compliant, but what can you do to the bungalows if they aren't?" Zucker said. A couple of county workers were headed out to camps that

had a history of poorer record-keeping. They would also be looking in on some camps for children with cancer, where extra care had to be taken, because of the kids' lowered immunity and likely intolerance of vaccines.

We caravanned over to Camp Bnos, in the nearby town of Liberty. Almost a thousand girls were scheduled to arrive the next day; they'd all be checked for measles, though not until after the so-called pump speech—the welcome woo-hoo. At the entrance, just off the road and past a gap in the fencing, a guard had each visitor sign in, a new protocol instituted by the state, to keep track of comings and goings for the purpose of potential contact investigations. Someone said, "Can you imagine this on visiting day?" Apparently, authorities were deciding whether to insist that visitors be immunized, too. But how? This was almost nothing—just a hassle with a few clipboards while a couple of cars were backed up into the road—but it gave a hint of how even such minor impositions might begin to seem invasive, and how precarious the camps' continued coöperation might be. "You don't want to drive people underground," Zucker said.

We were met by the heads of the camp—men in either dark suits or *rekel* and a black hat; women in mostly black, with long sleeves and skirts—who led us into a dining hall, where a table, set for sixteen, offered a layout of kosher sushi, sculpted fruit, rugelach, Ritz crackers, and orange juice.

An administrator said that, of hundreds of families, only two were part of the anti-vax movement; their children weren't coming to the camp this year. "Once all the schools are compliant, it will make our lives easier," Shimon Newmark, a camp director, said. "No more religious exemption should help, too. Our staff has basically turned into a medical office. It's a lot of work." A month before, the staff had started cancelling registrations of noncompliant families. "One person

tried to claim a religious exemption, then, when that was no longer accepted, they tried an allergic exemption," Newmark said. "Our M.D. found that allergies have no relation to vaccines. Eventually, that family cancelled and got a refund."

Zucker asked the group, "What can we do to help?"

Shani Schmalz, the Bnos camp director, said, "It's very, very important the inspectors be accommodating. If they're not, word will get out quickly: 'We're under attack.' And when they think they're under attack people will defer to their fears. The anti-vaxxers will jump on it and sue and say anti-Semitism."

Outside, pods of workers hurried to ready the camp. The grounds smelled of fresh asphalt. There were already a few kids about, idling in the shade. A dozen mustard-colored bunkhouses ringed a patchy sloping lawn.

"I actually went to an Orthodox summer camp around here, one exit away," Zucker told his hosts. "Camp Hili." (Zucker's parents had a house on a nearby two-acre plot of land, which Zucker still owns.)

Meir Frischman, the camp's director emeritus, who'd started as a "pantry boy" at age thirteen, laughed and told him that Bnos had bought a pair of bunkhouses from Hili. He offered to help Zucker search for his old bunk. "You could be a camp counsellor here," he said. "You got the spirit."

"I won the all-around-camper award," Zucker said. "I got a trophy."

During a tour of the infirmary, which was little more than a trailer, Zucker said, "I got sent to the infirmary when I was at camp. I remember! I got run over by a roller skate."

After walking through Camp Agudah, the boys' counterpart to Bnos, Zucker had a moment alone in the parking lot with Newmark and asked him, with some delicacy, about how the counsellors and the adults at the camp observe and ultimately pass along indicators of mental or emotional distress. It seemed to Zucker that here, away from parents and schoolmates and the routines and pressures of regular life, a boy who might be suffering from some difficulty, pain, or trauma might reveal things that he might not at home, and that it might be of some benefit, to the boys and even to society, to keep a benevolent, watchful eye. "Maybe you have an opportunity here, know what I mean?" Zucker said. This was a tricky line of inquiry, fraught on all sides, and yet for me, as a civilian who knows the damage that damaged men do in the world, an unexpectedly enlightened one. Another virus, but one yet without a vaccine. It made me think of Zucker's father, in the ear of the assemblyman.

Later, there was a visit to a secular coed camp down the road, Iroquois Springs. Tennis. Canoeing. Roller hockey. The girls' bunks a riot of color, in contrast with the muted monochromes at Bnos. It was a summer of unicorns. Some teens lounged on a porch and eyed the delegation coolly. The camp's director, Mark Newfield, from Long Island, met the delegation in a Victorian mansion, which served as camp headquarters; it had once, he said, been the summer residence of Governor Al Smith. "The best thing for us is that the outbreak has increased awareness," Newfield said. "This summer, we had to disinvite a few non-vaccinated kids. They were longtime kids. The parents were crying and angry. One parent tried to change my beliefs, was sending me YouTube videos. Four kids opted not to come."

Zucker asked Newfield what his greatest challenges were. Newfield and the camp pediatrician gave each other a knowing look, and Newfield said, "The volume of prescribed medication." He painted a familiar picture of a teen and

preteen pharmacopoeia. "It's mind-boggling and sad for us."

Zucker's rounds ended in the town of South Fallsburg, where Refuah has a northern outpost, for the growing Orthodox community. Refuah had bought a derelict brick high school in 2008, only to discover that it was riddled with asbestos. So, for now, there was a temporary office not much bigger than a trailer, as well as a half-dozen mobile R.V. clinics, which, Chanie Sternberg said, have seen between ninety and a hundred and twenty patients a day. Out in front was a sign that read "Fever and rash? Please stop here."

Refuah had brokered a meeting for Zucker and his colleagues with twenty or so prominent rabbis. There was a tent with round tables, balloons, and a buffet of fried food. Sternberg said, "If, God forbid, there was a case coming in"—apparently, a cabdriver had brought in multiple cases several days before, one at a time—"I thought it would be better to do this outside."

Also present were a few of the backers of the Hatzalah volunteer ambulance service, based in Brooklyn, which had established an outpost in the area a few years ago to alleviate some of the pressure on the local volunteer firemen and E.M.T.s, who in the summer often have lucrative work to attend to. The Hatzalah people invited Zucker to look at an ambulance and inspect their dispatching station. "On Thursday, we had five or six calls up here," one of them said. "On Friday, we had thirty-five calls. The people, they come from Brooklyn—they're not used to the curvy roads. We had three rollovers on Friday on the same quarter mile of road." Zucker was impressed. "So," the Hatzalah volunteer said, "we bring the problem, and we bring the solution."

As the summer progressed, the line held. The camps, it turned out, produced no new cases, and the pace of infection slowed, at least in New York. In late July,

Rockland County ended its state of emergency. There was one fatality: an El Al flight attendant who went into a coma and died this month after falling ill on a flight from New York. One in a thousand. Two weeks ago, five new cases sprouted up in a Mennonite community near Buffalo, but these were considered, by the C.D.C., to be a new chain, unrelated to the one that started with the travellers from Israel. The broader sturdiness of vaccination rates statewide, and a collaborative public-health effort that Zucker called "a tour de force," seemed to have stalled the outbreak and to have at least made it possible to imagine the retention of elimination status, come October. "I do believe that if we hadn't done it this way, by throwing everything we could at it, on an array of fronts, the numbers would have been much, much worse," Zucker said, last week. This was, in some ways, a medical equivalent of the Powell Doctrine, and the next campaign would be the looming school year and a renewed effort to persuade the hesitant. But it was hard to celebrate, amid an atmosphere, nationwide, of mounting misinformation and mistrust—a summer of racist shootings, ice-cap meltdowns, federal-agency scientist purges, Epstein conspiracy theories, and Bill Hader deep fakes. From his office in Albany, Zucker now speed-mumbles about e-cigarettes, Ebola, the flu, and what he and not he alone considers to be an allout war on science. We bring the problem, anyway. ◆

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