

What Can Bin Laden Teach Us About Medicine?

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Episode Transcript

Remember this?

OBAMA: Good evening. Tonight, I can report to the American people and to the world: the United States has conducted an operation that killed Osama bin Laden, the leader of al Qaeda.

That was President Barack Obama in May 2011. You probably know this story well. For almost a decade, Osama bin Laden had eluded U.S. military forces. But finally, in 2011, there was a lead.

OBAMA: It was far from certain, and it took many months to run this thread to ground.

The lead was that bin Laden was hiding out in Pakistan. And after many months working to confirm his exact location, a specialized force raided the compound. The rest was history.

OBAMA: Justice has been done.

So, that's the story. The raid was a heroic feat; it was even quickly made into a Hollywood blockbuster, *Zero Dark Thirty*. But do you really know the efforts the U.S. went to try to find Osama bin Laden?

From the Freakonomics Radio Network, this is *Freakonomics, M.D.*

I'm Bapu Jena. I'm a medical doctor and an economist. Each episode, I dissect an interesting question at the sweet spot between health and economics.

Today on the show: the mission to find, capture, and kill Osama bin Laden had an unintended consequence for the health of the people of Pakistan.

Monica MARTINEZ-BRAVO: The Pakistani Taliban were essentially telling people to not trust vaccination workers, that there could be spies.

We'll explore a study about how this distrust of vaccination workers has had lasting effects on Pakistanis — and what it can teach us about distrust *in America*.

Fatima STANFORD: That experience taught me that medicine isn't always a safe space.

Let's take things back a bit, to the year or so before Osama bin Laden was killed.

In 2010, the C.I.A. had intelligence suggesting Osama bin Laden was hiding out in Pakistan. But they didn't have enough evidence to raid the compound.

MARTINEZ-BRAVO: The C.I.A. wanted to get definitive proof that he was hiding there.

That's Monica Martinez-Bravo. She's an economist at CEMFI, a research center in Madrid, Spain. And this period of history is a bit of her specialty. We'll get to that in a minute. Anyway, the C.I.A. really needed clear, undeniable proof that Osama bin Laden was at this particular compound. So, they set up an elaborate operation.

Monica MARTINEZ-BRAVO: The C.I.A. hired a Pakistani physician, Dr. Shakil Afridi, who cooperated with the C.I.A. and started doing Hepatitis B vaccination campaigns.

And why was the C.I.A. interested in vaccinating Pakistani children against Hepatitis B? Yeah, it's a serious, preventable liver infection. But they had an ulterior motive as well — thanks to some other intelligence they'd gathered.

MARTINEZ-BRAVO: Bin Laden's sister had died in Boston at the time. Because of that, they had the D.N.A. of his sister.

This D.N.A. gave the C.I.A. an opportunity. If they could find children near the suspected compound who had similar D.N.A., maybe they could trace the child to bin Laden and confirm where he was staying. The vaccination campaign did start to vaccinate children against Hepatitis B, but it was really just a cover, a way to collect a whole bunch of D.N.A. samples.

MARTINEZ-BRAVO: Of course, this was without the consent or the knowledge of any Pakistani health authorities.

This ruse was carried out in March and April of 2011. And, it turns out, the ruse didn't even succeed in getting DNA samples from bin Laden's children. But the next month, President Obama made his now-famous announcement of Osama bin Laden's death. And then, two months after that —

MARTINEZ-BRAVO: In an article published in The Guardian, they described the vaccine ruse.

It didn't matter that the vaccine ruse didn't work. The people of Pakistan were not happy.

MARTINEZ-BRAVO: In order to understand the, the scope of the effects in Pakistan, it's also very important to keep in mind that the Pakistani Taliban had been trying to discredit formal medicine for a number of years already. And they have tried to attack vaccines and vaccination campaigns in particular, spreading all kinds of rumors, suggesting that vaccines were made out of pig fat or that vaccination attempts were a conspiracy by Western countries to sterilize the Muslim population. So, in this background, the disclosure of the information that the vaccine ruse had happened, all of a sudden lent a lot of credibility to many of these rumors.

So, the Taliban essentially doubled down on their anti-vaccination messages. This made Monica and her co-author, Andreas Stegmann, wonder —

MARTINEZ-BRAVO: — whether the disclosure of information that discredits vaccines affects negatively vaccination rates and confidence in science and in medicine more generally.

They got their hands on some data to try to answer this question. Specifically, two waves of data from a national survey in Pakistan. One set was from 2010, before the ruse, and the other was from 2012, after the ruse. In the data, the researchers were able to look at the vaccination records of about 20,000 children under the age of two.

MARTINEZ-BRAVO: So, that's very nice data, which was very large in scope.

With these data, Monica and Andreas conducted what's called a difference-in-differences analysis. What this means is that they compared the likelihood of a child being vaccinated before the ruse to the likelihood of a child being vaccinated after the ruse was disclosed. And they specifically looked at how this likelihood changed over time in terms of where children were located, since different districts had constituents with different levels of sympathy for Islamist groups.

MARTINEZ-BRAVO: What we find in this study is that one standard deviation increase in support for Islamist parties is associated with declines in vaccination rates between 12 and 20 percent.

In other words: for children born in areas with higher support for Islamist parties, there was a larger reduction in the likelihood of being vaccinated *after* the C.I.A. ruse, compared to the change in likelihood of vaccination in areas with less Islamist support (basically, areas that served as a control group). And this finding, by the way, was across immunization in general, specifically for well-established vaccines for diseases like polio and measles.

Monica and Andreas also conducted a bunch of tests to make sure that their findings made sense. For example, they not only looked at changes in vaccination but in overall healthcare use, since the C.I.A. operation may have led to generalized distrust of physicians.

MARTINEZ-BRAVO: In this survey, there was a question of whether parents consulted a physician when their kids got sick. We find that, actually, there is a decline in the likelihood, after these events, that they consult a formal doctor.

The decline in parents taking their kids to the doctor supports this idea that trust in doctors, in medicine, fell after the C.I.A. vaccine ruse was revealed. But the researchers also noticed that there was an increase in the likelihood that parents went to informal medical practitioners, like birth attendants.

Another piece of evidence that the effect Monica and Andreas found was causal relates to the gender of the kids they studied. They found that girls were more likely to have decreased vaccination rates.

MARTINEZ-BRAVO: This is consistent with a particular rumor that was spreading at the time that vaccines were an attempt to sterilize Muslim girls.

Monica and Andreas also checked out the supply of vaccines, to make sure the drop in vaccinations couldn't be explained by a drop in the availability of vaccines.

MARTINEZ-BRAVO: The reason why this is important is that in the aftermath of all this, there have been some attacks to vaccination workers. Not precisely related to the C.I.A. vaccine ruse, but just in general. So, what we did is collect administrative data on the number of vaccination campaigns that took place every month in every district throughout Pakistan for a number of years as well as the number of kids that they targeted. And even if you very flexibly control for this basic supply measures, our results are still there and unaffected.

This means that vaccine distrust likely played some role in this drop in the vaccination rates. The researchers also looked to see if there were any increases in vaccine-preventable diseases, specifically polio.

MARTINEZ-BRAVO: Sadly, we also find positive effects on the number of polio cases, to the amount of one extra case of polio in the district per standard deviation support in Islamist parties.

In other words, the more support a district had for an Islamist party, the more polio cases there were.

MARTINEZ-BRAVO: One extra case might not sound very large, but at that point polio — luckily — was having a low incidence. So, even one extra case was about 93 percent over the average. It's actually a large magnitude.

Fortunately, Monica's paper found that this effect didn't last forever. The drop in vaccination mostly affected children born within a year after the disclosure of the C.I.A.'s ruse. Monica and her co-author wrote that the effect may have tapered because of active

work by vaccination workers and religious leaders to rebuild trust. But they needed to look into this more. Still, she was able to document a clear effect of the ruse on vaccine skepticism. And it resulted in children not getting the vaccines they needed.

There was also a strong negative reaction to this ruse in the U.S. Deans from the top medical schools sent a letter to President Obama in 2013, complaining about the use of health programs in espionage.

Monica MARTINEZ-BRAVO: Shortly after, the White House announced that the C.I.A. pledged not to ever use vaccination programs as cover for gathering intelligence.

They made this pledge without ever really apologizing for the scandal. But there could be longer-term consequences of the C.I.A.'s actions.

Monica MARTINEZ-BRAVO: There's this notion that conspiracy theories are fed by some small, true pieces of information that kind of validate the rest of the conspiracy.

Meaning, it sounds crazy that the C.I.A. would use vaccines to try to find Osama bin Laden. But they did. And so, conspiracy theories — things that aren't actually true — might seem more plausible or credible *because* of this ruse.

MARTINEZ-BRAVO: In that sense, the consequences of the C.I.A. vaccine ruse could be magnified. As a society, we should put some, you know, limits to espionage and definitely not doing things that could put any type of shadow into science or into medicine.

Monica's point is really important. The origins of scientific distrust are hard to pinpoint and to study. I mean, since the start of the pandemic, lots of people have actually been distrustful of scientifically proven therapies, like vaccines, and unusually trusting of unproven therapies. It's hard to know exactly where that distrust comes from, and what primes people to become distrustful in the first place. But events that erode people's trust in healthcare must matter. One thing is clear though, distrust of the medical establishment isn't only a problem in Pakistan. That's coming up next on *Freakonomics, M.D.*

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So, we just heard how the C.I.A.'s intelligence program had a pretty big and negative effect on healthcare delivery in Pakistan. Trust in the medical field went down because of what the C.I.A. did. But of course, there are events like this in other communities. One of the most prominent examples in the U.S. is one you're probably already very familiar with — the Tuskegee experiment, which lasted from the 1930s through the 1970s.

Fatima Cody STANFORD: The Tuskegee experiment was done on Black men in Tuskegee, Alabama, run by, unfortunately, our U.S. government. They basically exposed Black men to syphilis and wanted to see what were the different stages of the disease. And instead of treating them with antibiotics, which is the treatment for syphilis, they allowed the syphilis to make it to all the stages. And then unfortunately, led to the death of many of these individuals.

That's Dr. Fatima Cody Stanford. She's a doctor who specializes in obesity and health equity at Massachusetts General Hospital. To be clear — the U.S. government did not purposely expose Black men to syphilis. The men who were recruited either already had syphilis, or they didn't. But knowingly denying these men treatment for syphilis almost certainly led to other Black people being infected with the disease. The Tuskegee experiment led to the deaths of 128 Black men, and dozens of syphilis infections among the participants' wives and children. It was a horribly cruel thing done in the name of science, and it's had a devastating impact on Black health in America.

A 2018 paper by the economists Marcella Alsan and Marianne Wanamaker sought to quantify the effect the Tuskegee Experiment had on the Black population and its view of the medical community. Like the C.I.A. vaccine ruse, the public found out about the Tuskegee study through a news report. So, Marcella and Marianne compared medical distrust among Black men from before and after that news revelation. They used data from a variety of U.S. surveys, like the wide-ranging General Social Survey, or the G.S.S. The G.S.S. is conducted every two years. Researchers use the survey to collect data on attitudes of Americans towards a bunch of different topics. Overall, Marcella and Marianne found that the disclosure of the Tuskegee study led to an increase in the health gap between white and Black men between 1970 and 1980. They estimated that the disclosure led to the life expectancy of Black men at age 45 to fall by 1.5 years. And the closer an older, Black man lived to Macon County, Alabama, which is where Tuskegee is located, the less likely they were to interact with the healthcare system.

Those are sobering findings to take in. And, like I mentioned earlier, studying distrust is empirically hard. Sure, you could survey people about their levels of trust in healthcare and see how that associates with health behaviors, like going to the doctor or taking medicine. But it's impossible to separate distrust from poor health literacy, low education, or other factors that influence people's healthcare choices. The Tuskegee study and the C.I.A. study I talked about earlier are important because they credibly show how health behaviors can change when there are shocks to our trust.

But this doesn't just happen through large-scale events. Fatima says distrust can also build up through everyday experiences.

STANFORD: When they go to the doctor, how are they treated, how are they treated differently than their white male and female counterparts, for example, if they're a person of color. How are they treated differently if they're from some lower socioeconomic background? What is the type of care they're receiving? And so, those everyday issues that people can experience really set them up for a lack of trust in the medical system, even when it comes to handling what we have seen as the most life-changing pandemic of our lifetimes.

Black people are 2.5 times more likely to be hospitalized because of Covid-19 compared to white people, and 1.7 times more likely to die of the virus.

STANFORD: There was a physician by the name of Dr. Susan Moore, who's a Black woman physician, who trained at the University of Michigan, who died in 2020 due to Covid-19. When she went in to be seen, her credentials as an M.D. here in the United States really didn't mean anything. She documented on camera as she struggled with Covid-19 all the way up until when she died. And a lot of what it appeared to be — at least from just watching her record her treatment — had to do with her Blackness.

For instance, in a video Dr. Moore is lying in a hospital bed getting additional oxygen to help her breathe. She said a doctor told her to go home, and that he didn't feel comfortable giving her more narcotics for her pain.

MOORE: I was crushed. He made me feel like I was a drug addict, and he knew I was a physician.

STANFORD: If she's unable to really advocate for herself, persons that have lesser education, lesser knowledge, are going to have even more hurdles to overcome and barriers to navigate.

Research suggests that, in general, minorities are more distrustful of doctors than white Americans. But of course, lots of people are distrustful of medical care, across racial and ethnic lines. And while another recent paper found that Black and white Americans were similarly likely to say they would get vaccinated, Black people seemed to overcome this hesitancy quicker.

What that paper shows is that, while there may be deep distrust of medical institutions in the Black community, it can be changed. Fatima has studied how this distrust can be improved during the Covid-19 pandemic. The paper was published in April 2021 in the *Annals of Internal Medicine*.

STANFORD: We really want to see if the messaging surrounding COVID-19 is coming from a person that is Black, particularly a Black physician, will that message be better received amongst Black patients?

Fatima and her colleagues set up a study that included almost 12,000 Black and Latino people in May 2020. The participants were randomized to watch three different videos featuring three different doctors talking about Covid-19 and prevention measures. The doctors were of varying racial and ethnic backgrounds.

STANFORD: We tried to discern whether or not these messages coming from individuals of different racial, ethnic backgrounds influence the knowledge and/or behaviors of those from racial-ethnic groups.

What did they find?

STANFORD: When a message about COVID-19 is delivered by Black physicians, whether or not they're known to the individual, we see significant more trust and more likelihood to make change compared to other messengers. So, what does that mean? It means that we have to have a better workforce of individuals that are from Black communities to serve in roles that are trusted.

The researchers didn't see this same effect among Latino patients. But for Black patients, this was an important finding. After all, only 5 percent of doctors are Black.

STANFORD: That's significantly less than the percentage in the population. So, we have a mismatch. We don't have the workforce to handle building up trust. And we have to do better.

There's another paper that underscores why increasing diversity among medical professionals could be helpful. It was published in the *American Economic Review* in 2019. The researchers, Marcella Alsan, Owen Garrick, and Grant Graziani, studied whether a doctor's race had any effect on the demand for preventative care among Black men. And they did this by conducting a randomized control trial in Oakland, California. They randomly assigned hundreds of Black men to receive preventative healthcare from either a Black doctor or a non-Black doctor. When the patients visited the doctors in person, they were more likely to agree to more preventative services when their doctor was Black, like them. This finding, by the way, was strongest among patients that didn't have much interaction with routine medical care. The patients were also more likely to ask advice from Black doctors. This and other studies suggest that greater diversity among doctors could have health impacts for patients.

Despite the implications of some of the studies I just talked about, building diversity and getting more Black doctors — it's not easy. I could give you lots of data as to why that is — that's normally our approach on this show. But Fatima's own personal story shows how hard the profession can be on Black medical students and doctors.

When Fatima was a medical student, she noticed a Black man in the back of many of the school's archival photos from the 1800s, a man named Grandison Harris.

STANFORD: He was a slave purchased with the sole role of robbing Black grave sites for the medical students at the time to have bodies by which to study anatomy. Not necessarily surprising, but disturbing in and of itself. This gentleman had never been acknowledged for his contributions.

Fatima was the first Black class president in the school's history, so she decided she'd use her position to recognize Grandison at a ceremony first-year medical students hold, honoring the cadavers they'll study. She brought this idea to the other class officers.

STANFORD: I was met with significant dismay about me bringing up the dirty laundry of the medical school and that he didn't need to be acknowledged.

Fatima decided to honor Grandison at the ceremony anyway. Then, things changed.

STANFORD: I began to have things thrown at me in class every single day of the rest of my medical school career.

Things like wadded up pieces of paper.

STANFORD: They also published an anonymous newsletter where they talk about my Black features, the size of my nose, the contrast of my teeth to my skin color, the width of my ass. And yet, unfortunately those individuals are practicing physicians all around the country currently. And that was what I had to endure as a medical student.

This experience had a lasting impact on her view of the medical profession.

STANFORD: That experience taught me that medicine isn't always a safe space. When I thought about my early desires to become a physician, I thought it would be amongst people that would treat me with kindness. And I've recognized that that's not true. This is a part of a larger systemic issue — racism that exists in medicine.

So, it's easy to say we need more Black doctors. That one way to build trust in medicine is to build a system where the people that care for you, look like you. But getting there isn't easy, and it requires change. We can't pretend that racism in our healthcare system doesn't exist in our medical schools, our nursing schools, and other schools as well. How we get there — well, that could be an entire, separate podcast. And maybe there's a glimmer of hope on the horizon: the number of Black and Latino students enrolling in medical school is increasing, but slowly. One thing is clear: repairing broken trust takes a lot of work. Here's Fatima Cody Stanford again.

STANFORD: All of us are human. And with that comes the need to do some self-reflection about our own biases and how they might play out and rear, you know, its ugly head in our interactions with others. I would say start with yourself. See if you potentially have led to any negative outcomes in individuals that you have encountered in your respective work, whether it's in medicine or elsewhere. Then we can begin to make change.

Thanks for listening to today's show, and to Fatima Cody Stanford and Monica Martinez-Bravo for talking with us. Let me know what you thought about this episode. I'm at bapu@freakonomics.com. And by the way, I just wanted to let you know that we republished this episode. An earlier version didn't explain some of Fatima's comments about the Tuskegee experiment, and we wanted to make it clear. So, we made the fix and are re-releasing the episode. Thank you to the listeners who flagged that. If you want to learn more about the research I talked about today, or if you want to read a transcript of today's show, that's at freakonomics.com. See you next week!

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MARTINEZ-BRAVO: The idea of this study came up from a Freakonomics podcast, which I listened to in 2015, initially. So, yeah, I can say that it all began with a Freakonomics podcast, and this is kind of closing the circle.

Sources

- [Monica Martinez-Bravo](#), professor of economics at the Center for Monetary and Financial Studies.
- [Fatima Cody Stanford](#), physician at Massachusetts General Hospital and professor at Harvard Medical School.

Resources

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- “Comparison of Knowledge and Information-Seeking Behavior After General COVID-19 Public Health Messages and Messages Tailored for Black and Latinx Communities,” by Marcella Alsan, Fatima Cody Stanford, Abhijit Banerjee, Emily Breza, Arun G. Chandrasekhar, Sarah Eichmeyer, Paul Goldsmith-Pinkham, Lucy Ogbu-Nwobodo, Benjamin A. Olken, Carlos Torres, Anirudh Sankar, Pierre-Luc Vautrey, and Esther Duflo (*Annals of Internal Medicine*, 2021).
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- “Tuskegee and the Health of Black Men,” by Marcella Alsan and Marianne Wanamaker (*The Quarterly Journal of Economics*, 2017).
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- “Racial/Ethnic Differences in Physician Distrust in the United States,” by Katrina Armstrong, Karima L. Ravenell, Suzanne McMurphy, and Mary Putt (*American Journal of Public Health*, 2007).