**Harlan Krumholz:** Welcome to *Health & Veritas*. I’m Harlan Krumholz.

**Howard Forman:** And I’m Howie Forman. We’re physicians and professors at Yale University, we’re trying to get closer to the truth about health and healthcare. We’re excited to welcome Professor Zack Cooper today. But first, we always like to check in on whatever the hot topics in health and healthcare are. So Harlan, tell us what’s going on.

**Harlan Krumholz:** I don’t know, there’s so much going on, Howie. But one of the things that caught my eye this week was Hippocratic A.I. Have you heard of that?

**Howard Forman:** Only because you brought it up to me recently, but no, I have not heard about it. It’s come out of nowhere.

**Harlan Krumholz:** It’s kind of the most recent darling of the generative A.I. programs focusing on health. So this group, which has been sort of in stealth mode for a long time, just came out this week and talked about how they raised another $53 million [from venture firms like General Catalyst](https://www.fiercehealthcare.com/ai-and-machine-learning/hippocratic-ai-banks-53m-backed-general-catalyst-a16z-memorial-hermann-uhs). And they already had participation from [Marc] Andreessen and others for now a valuation that hits $500 million, but they actually have no customers yet. They’re mostly in a mode where they’re coming out of stealth and are testing a product. And what’s interesting is that this product that they’re talking about, it’s called Polaris. It came out in a [pre-print](https://static1.squarespace.com/static/644f377bcdcff95fb90fd4a5/t/65f8961268a4fc7c7ae78fba/1710790166625/Polaris.pdf). And these pre-prints are basically, anyone can post something, there’s no peer review to it yet. And basically what they’re saying is that they’re trying to put together something that can actually get involved in long-term conversations. Sometimes I think about these as chatbots, but voice conversations with patients, they’re going to address some of the issues that we’re facing around shortage of medical personnel.

So they’re saying like, “Look, we’re lacking nurses in the healthcare ecosystem, and we’re going to try to put together a system that’s going to be able to replace nurses.” Now, you and I both know that one of the issues with generative A.I. in these, like the [ChatGPTs](https://openai.com/blog/start-using-chatgpt-instantly) or the [Google Gemini](https://gemini.google.com/) or the [Anthropic Claude](https://www.anthropic.com/claude), which they just came out with, their third version, is that although they are amazing and I think they’re amazing, they also can be prone to confabulate. They can produce results that aren’t correct. It’s almost like they’re dreaming, they’re so creative, they become untethered from the truth. So people have been concerned about this in healthcare that, okay, these may be good for some tasks that have a lot of oversight, but can you really actually put them out into the wild and let them interact with patients in ways that are unsupervised because they’re so safe that they work? I don’t know. What do you think about that?

**Howard Forman:** No, look, I worry about all of this, and quite frankly, Harlan, look, you are the one who introduced this to me a couple of years ago where you started raising concerns and I started doing more reading. I do worry a lot about that, and it’s why the best use cases are areas where it is an assistive technology to physicians or other providers as opposed to what you’re describing, where they really are artificial intelligence engaging with patients. And we will not have enough data on that for years to feel confident in that. And I am hopeful that the FDA actually realizes that as well.

**Harlan Krumholz:** So it is a real moon shot. There’s no question about it. And they are trying to put in place guardrails within this, how they’re pre-training the system. I mean, one of the things that’s interesting to me is when you get these companies that come out and say, “We’re going to pre-train, we’re going to prepare these models based on a lot of input of medical information.” I find it interesting because when I’m interacting, for example with ChatGPT, and I use a lot of them all the time to both, I use them to help me and work, because I’m curious about them, they’re darn good at medical stuff. I mean, anyone should try them. I mean, ask them anything, they’re darn good.

So I wonder how much better they can be and how much safer they can be. But this is their whole point, we’re going to... they contend that they’re going to be able to produce a very safe product. I just want to give you some examples in this pre-print, though what I thought was very interesting was the way in which they were sort of testing them, and I thought this was interesting because they’re also looking at whether or not they can create these interactions such that they’re not only accurate, but they’re empathic. So for example, they say they’ve got one interaction with a patient where actually what they’re doing is trying to build rapport with the patient.

**Howard Forman:** Right, exactly.

**Harlan Krumholz:** So they start just talking about like, “Hey, how are you doing? Before we dive into topics, I’d like to get to know you a little better. Is there anything you’re looking forward to doing this week?” By the way, these patients were in many cases, nurses who were acting as patients, then they were able to generate these interactions. Then they had real nurses acting with patients, and then they had nurses and doctors judging the quality of the interactions. But the patient says, “I’m looking forward to a little gardening. It’s something I love.” And then the computer says, “That sounds wonderful, George, gardening can be indeed very therapeutic,” blah, blah, blah.

And they go on in a whole conversation that’s simply rapport building. And I thought that’s quite interesting. They had another example, by the way, where they were demonstrating how they could sort of let people off the hook. There was an interaction that was going on where someone said, “I’m embarrassed, but I haven’t been able to take all my meds.” I can’t quite remember the example. It was something like they were embarrassed that they weren’t able to do something and the computer had been... I see this on ChatGPT too, had been put in a position where it was saying, “You don’t need to be embarrassed. Don’t worry.”

**Howard Forman:** That’s crazy.

**Harlan Krumholz:** “That’s understandable. That happens to people.” In a way that I thought was very appropriate and good. So there’s all these examples in this pre-print. We’ll [put a link to it](https://static1.squarespace.com/static/644f377bcdcff95fb90fd4a5/t/65f8961268a4fc7c7ae78fba/1710790166625/Polaris.pdf) in the thing. People should know, again, this is the company producing the results of studies that they did. But what was interesting in this pre-print, also—I’ll just end with this, Howie, there’s so much that I could get into. But when you looked at the comparison of, for example, nurses evaluating the computer, doctors evaluating the computer and nurses evaluating nurses, so they’re sort of trying to get to this thing. In almost every case, the machine scored higher, and we’ve seen this before in other studies.

**Howard Forman:** You’ve scored it up [in prior podcasts](https://insights.som.yale.edu/podcasts/health-veritas/stephanie-sudikoff-the-power-of-medical-simulation). Yeah, it’s more empathic.

**Harlan Krumholz:** More empathic. So when people are valuing these, but these are more longer-term conversations than short-term texts that are going on. But anyway, let’s stay tuned to this. I mean, again, it’s a moon shot. It is a long shot, but this field is moving so fast and there’s lots of capital being deployed.

**Howard Forman:** That’s for sure.

**Harlan Krumholz:** Yeah, they’ve raised about $120 million so far. So $500 million valuation on $120. But yeah, we’ll see what happens.

**Howard Forman:** Many of these companies will fail, but we do root for them. We want them to succeed. We just don’t know which ones will be.

**Harlan Krumholz:** But the world’s changing. World’s changing fast.

**Howard Forman:** Yep.

**Harlan Krumholz:** Hey, Howie, let’s get on to our interview with Zack.

**Howard Forman:** Zack Cooper is an associate professor of public health and of economics at Yale University. Additionally, he serves as the director of health policy at Yale’s [Institution for Social and Policy Studies](https://isps.yale.edu/). As a health economist, Cooper’s work focuses on topics ranging from the impact of competition in the insurance market to the influence of electoral politics on healthcare spending. In 2021, Cooper co-launched the [1% Steps for Healthcare Reform Project](https://onepercentsteps.com/), which highlights tangible ways in which small changes in the healthcare system can accumulate to as much as $400 billion in savings each year.

His investigations tackle the most challenging topics of the day, but more than that, he’s not just shining a light on problems, he also has actively supported efforts to solve them, as we’ll talk about today. Zack Cooper received his undergraduate degree from the University of Chicago and his PhD from the London School of Economics, after which he joined us. And first of all, I just want to welcome you to the podcast. One of the fun things about doing the podcast is to get a little backstory, and I don’t think I’ve ever asked you about even where you grew up or how you came to be interested in health policy. So I’d love to start off with that topic and how you came to this.

**Zack Cooper:** Well, totally. And Harlan and Howie, thanks for having me. Howie, you have a radio voice. You sound so professional on that intro.

**Howard Forman:** You are lying, but thank you.

**Zack Cooper:** No, I am not. Yeah, so the background, I was born in New York, ended up growing up mostly in Vermont and grew up as a ski racer. So I went to one of these high schools that you sort of almost can’t believe exists in the U.S. It was a high school for winter sports athletes. And so I did that. I had no intention of, well, doing anything other than skiing, and it turns out I just wasn’t very good. I ended up actually in, we were talking about the ER before, I ended up with a [compartment syndrome](https://en.wikipedia.org/wiki/Compartment_syndrome), which for any non-MD out there who’s listening is shall we charitably say not pleasant? And that was—

**Howard Forman:** Potentially limb-threatening.

**Zack Cooper:** Yeah, this was a bad day at the office, and we talked about that too, but I ended up, it sort of, squandered the last year I was racing. So I ended up going to college, and I went to a small school that had a really good ski team for a year. I did Division I skiing, and I was skiing slowly and not going to class, and I couldn’t figure out why I was doing it. And actually, it’s an awesome story. I ended up applying to transfer, and a lot of places I wanted to transfer to had ski teams, and I didn’t think that was a great idea. I thought it was going to potentially pull me back. And so I went to the place that had the least opportunity to ski, and that was the University of Chicago. And so I got in as a transfer student, and I got a call from a guy named Ted O’Neill, who is the admissions director, and he said, “Look, we’re going to let you into transfer, but I don’t think this is the right place for you. This is a pretty nerdy place. You basically didn’t go to high school, and we don’t want somebody who’s going to end up transferring twice. That’s not the best thing for you.” So he said, “Come on out, visit.” Turns out Ted had a really soft spot for athletes. He was a Division I football player. And I got there and fell in love with the university and got crushed my first year. It was not a pretty nine months in my first year, but I really found my way. And when I came back to, when I started at Yale, my office is right next to the admissions office at Yale. And I sent Ted a note, and I said, “Very rarely... you meet one or two people in your life who finally, like, change the arc of your life.” And he’s one of those people. If I hadn’t gotten into the University of Chicago, I don’t know what I’d be doing, but certainly not—

**Howard Forman:** It’s a great story.

**Zack Cooper:** Ended up in grad school and I told him, “I look at the admissions office every day and I think of him,” and one of the coolest things about being at Yale is we have this thing called the [Eli Whitney Scholars Program](https://admissions.yale.edu/eli-whitney), which is a program for nontraditional students. I wasn’t nontraditional in the timing sense, but I really did not look like the, I’d say, the modal person who ended up at U of C. And so I’ve now gotten... I’ve really supported two folks who’ve come through the Eli Whitney Scholars Program. One is my best friend, a guy named James Hatch, who’s the oldest undergrad at Yale. He’s 56 and graduating this year.

And then a young fellow named Xavier Zayat, who I raced motorcycles with. So he was a guy who I knew through motorcycle racing who ended up making a big pivot in his life too. So that’s the sort of roundabout way I ended up. So I went to U of C, wanted to go to be a doctor, and so did that whole med school route. I took organic chemistry, which nobody should ever have to do, took the MCATs, which nobody should *ever,* ever have to do. And then got the chance to go to England, and I was going to go back to med school after but ended up doing my master’s there and health economics, econ. And it just seemed like it was sort of the right place. And so said no to med school and have been jealous of people like you and Harlan ever since and seven years later came back here.

**Howard Forman:** I definitely would love if you could give just two minutes on your Eli Whitney student because that story is a very compelling story, even if it’s unrelated to healthcare, or at least directly.

**Zack Cooper:** Totally. I think Yale, I love the university and I think the Eli Whitney Scholars Program is one of the real gems of the university. And one of my good buddies was the troop commander, squadron commander for this group called Seal Team Six, which is this sort of really unique, pretty high-speed military unit. And we knew each other really well, and one of his teammates had gotten shot. So he had been on a mission. Their group does some pretty weird stuff. So one of the things they do are hostage rescue missions, and they’d gone out to rescue this guy named Bowe Bergdahl, who’s this American private who had wandered off his base. And on the mission, this fellow Jimmy Hatch got shot, ended up needing something like 20 surgeries and had some real challenges afterwards with PTSD and just sort of dealing with pretty abrupt shift in his life. And he was sort of on the mend. And I lost a bet, actually, with my friend, and the bet was that if—I don’t remember what we were betting over, but if I lost, I had to go skydiving.

And so it ended up down in Virginia where these guys are stationed, and it turns out this guy, James, is an amazing skydiver. And so we all met up and went skydiving and we hit it off. He was remarkable, hugely cerebral, thoughtful, and became amazingly good friends. And he was really starting to find his way. He had just finished a book about mental health and his journey, and I was sort of asking him what he was going to do. He was maybe 48 at the time, 49, and had a lot of life ahead of him, and he didn’t really know. And I said, “You ever thought about going back to college or going to college?” And I sort of didn’t give much thought. I said, “What about Yale?” And: “I never think about that.” So we brought him up to campus. I was teaching a class with James Levinsohn, who runs [Jackson](https://jackson.yale.edu/) at the time. And Jimmy sat in and actually ended up sort of running through some of the examples with us and then took him to a couple of the classes.

And it was this sort of this moment in the Davenport Dining Hall that I think in many ways shows what Yale’s all about. He said to me something like, “I didn’t go to Phillips Exeter. I didn’t go to Deerfield. I don’t belong here.” There was a young woman sitting next to us and I said, “Hey, can I just ask you a question?” She said, “Sure.” I was like, “Where are you from?” “Los Angeles.” I said, “Do you mind if I ask a personal question?” “No.” I said, “What do your parents do?” “So my dad drives a taxi, and my mom’s a cleaner.” And you could see sort of Jimmy’s jaw drop, and it was sort of this idea that the university wasn’t what he thought it was, and he applied, got in, and it’s been awesome. So I get to have my best friend in town, and I get to watch him getting crushed as he did [Directed Studies](https://directedstudies.yale.edu/about-us) and navigates Herodotus, and I get to see him get back to Yale and benefit from it.

**Howard Forman:** Thanks for sharing that. Early on when you started tackling [surprise billing](https://academic.oup.com/qje/article-abstract/134/1/51/5090426?redirectedFrom=fulltext&login=false), I think there was a community of emergency medicine doctors who thought you were sort of attacking them, but it really, over time, it became much more obvious. This is just a big problem, and that while emergency medicine may be one big part of it, they’re not the only part of it. Can you talk about number one—because this is a great story of start to finish—number one, what the problem is. Number two, how you’ve shone a light on it. And then number three, what type of solutions have already been implemented because of your work and really specifically your work?

**Zack Cooper:** Totally. And y’all: interrupt me. I can go on and—push back and we’ll take the conversation as many directions—

**Harlan Krumholz:** No, but this is a great story and an example where you actually changed national policy. I think it’s worth talking about.

**Zack Cooper:** No, and I’m grateful to get the chance of it. So I was reading an article actually by Libby Rosenthal, who’s a writer. She was at the *Times*, then I was at Kaiser, and it was telling [the story of a guy named Craig Hopper](https://www.nytimes.com/2014/09/29/us/costs-can-go-up-fast-when-er-is-in-network-but-the-doctors-are-not.html?searchResultPosition=1). I literally remember the guy’s name because it had that big an impact on me. I went to an in-network hospital in emergency and ended up getting treated by an out-of-network physician. And for folks listening, it’s really one of these weird features of the U.S. health system. Doctors work in hospitals don’t necessarily participate in the same networks as the hospital where they work. And this guy goes to an in-network hospital. He’s not a network doctor, gets a bill for whatever it was, $1,200. And the thing that really grounds me a lot is putting that number in context and half the country doesn’t have $400 in their checking account.

So getting a bill that you didn’t expect and couldn’t avoid for 800 bucks, that’s a bad day for the majority of Americans. And so I wanted to figure out how often this was happening, if it was one in a million, it sounds callous but the solution’s a GoFundMe page. But if it’s something that’s more common, we’ve got a policy problem. And so I went on the hunt for data, and that was not easy. It took a long time to get folks to agree to give me the data. And I was working out with [Fiona Scott Morton](https://som.yale.edu/faculty-research/faculty-directory/fiona-m-scott-morton), who’s a colleague at SOM. And I remember we first got under the hood and we just looked at the data and we saw that one in four patients who went to an in-network hospital were treated by an out-of-network emergency room physician. And it was one of those, “Oh, you-know-what moments?” Like, “Wow, this is way higher than I thought.” And we put this in [*The New England Journal of Medicine*](https://www.nejm.org/doi/full/10.1056/NEJMp1608571)*,* and it got a fair bit of traction.

And in the coverage of it, there was a person at the American College of Emergency physician, Becky Parker, she was the president at the time, and had a quote at the end that [basically accused Fiona and I of data fraud](https://www.washingtonpost.com/news/wonk/wp/2016/11/17/the-surprisingly-common-reason-your-medical-bill-might-be-higher-than-you-expect/). I was like, “Wow, that’s aggressive. What in the world is that all about?” And I got a note a couple days later from another emergency physician who said, “Oh, I think you should know, her day job is actually the executive vice president of this company called Envision Healthcare or EmCare.” And [EmCare](https://www.nytimes.com/2017/07/24/upshot/the-company-behind-many-surprise-emergency-room-bills.html) is the largest physician staffing company or was, it actually [went bankrupt](https://www.whitecoatinvestor.com/envision-healthcare-bankruptcy/) pretty recently, but was the largest employer of emergency room physicians in the U.S. And long story short, they had a business model that was basically to buy emergency room physicians and strategically take them out of network.

And so [I had another paper](https://www.nber.org/papers/w23623) that really looked very specifically at them. It showed that when they came in, all the physicians went from in-network to out-of-network, they got much higher payments. And then we tested a policy proposal or policy package in New York that basically banned out-of-network billing and introduced a process through which physicians and insurance companies could settle their disputes. And show that this really, for all intents and purposes, eliminated patients’ out-of-pocket costs and actually lowered in-network rates. And our papers come out. One of the things that I do a lot with our work, because I really do want impact, is I try to collaborate with or work with journalists to tell the story. And we were really fortunate that *The New York Times* decided to cover it. It was the lead story on the front page, and the title was “[The Company Behind Surprise Medical Bills](https://www.nytimes.com/2017/07/24/upshot/the-company-behind-many-surprise-emergency-room-bills.html).” And it turned out it was that company and one called Team Health.

Paper came out. It got a decent amount of traction. And over the next 24 months, I probably took 15 trips to D.C. Lamar Alexander was a senator who was retiring but sort of took this as really a last issue he wanted to tackle, push through legislation. President Trump, to his credit, I think he’s got a bit of evil genius for populist things. And this is one of the things that actually, similar to drug pricing where I think he actually did some good work, got a sense that this is something that really was affecting people and supported it. It was one of these rare bipartisan moments, and it was 2021, I think they passed [the No Surprises Act](https://www.healthinsurance.org/glossary/no-surprises-act/), which basically took what happened in New York, scaled across the country, and it’s been imperfect. But [as I said](https://www.washingtonpost.com/politics/2024/02/14/no-surprises-act-comes-with-some-surprises/) to *The Washington Post* not long ago, there are millions of people now who aren’t getting surprise medical bills. And so even if the law hasn’t worked, it’s a good thing.

**Harlan Krumholz:** Well, and I think this is a way to inspire people at academia, especially on the applied research. I mean, the basic science side of course are unlocking secrets of the universe, God bless. But on the applied side, really our work should be making change, making things better. We should be identifying areas that we can improve. And actually, I think no one does it better than you do. And I don’t know the extent that you can allude to, but some of your more recent work is going to focus really on what the consequences of the increasing healthcare costs are on economy wages, on a whole range of other areas that people don’t always take into account when they look at rising healthcare costs.

**Zack Cooper:** Yeah. I mean, I can sort of talk broadly about it. The sort of question is, and it’s a central theme in a lot of my work, which is who’s paying and who’s benefiting from the healthcare system and how are they paying? And I think too often what happens is the folks who are really the most affected are often the most vulnerable. And the folks who benefit the most are often at the top of organizations. So we can think a little bit about the theory of who pays for rising healthcare costs. We think it comes out in labor markets. So we think that when the cost of healthcare rise, that results in lower wages. The challenge is it’s really hard to lower somebody’s wages. We all have employees, I can’t just go to a research assistant and say, “I’m going to pay you 10% less.”

Right? Certainly not in the short run. And so if I say, get the cost of employing somebody because the insurance premiums at Yale go up, what I can’t do is lower their pay. What I can do is probably let one person go or not hire another person. And so that’s what the theory suggests. Moreover, the theory suggests people you’re probably going to see letting go are lower-skilled, lower-wage workers. And so that’s something that we’re spending a bunch of time now looking at, and it’s been a heavy lift. We’re working with two amazing economists at the Treasury looking at the universe of tax returns. I thought healthcare claims data were a pain! It turns out everyone’s tax returns and the mountains and complexity of that are the only thing that’s been more complicated.

**Howard Forman:** And just for our listeners, that access to tax returns is first of all, incredibly privileged and all de-identified so that you’re not aware of any individual taxpayer’s tax returns, just so they understand that.

**Zack Cooper:** Yeah, no, it’s interesting. We actually don’t even work with the data. So the IRS rightly takes this incredibly seriously. So we write code and then we send it over to folks at the Treasury who run it. And I think the Treasury has done an amazing job using their research to shed light on the economy. So there’s work by [Raj Chetty](https://inequality.stanford.edu/about/people/raj-chetty) up at Harvard that looks at inequality. There’s some folks who’ve done amazing work about who pays how much in taxes. I mean, so it’s one of the sort of crown jewels, I think, of research data sets in the U.S.

**Howard Forman:** As we get to the end, I want to ask quickly, because you spent time in the UK, you studied at Oxford. I’m curious to hear you—Harlan and I [have talked about it](https://insights.som.yale.edu/podcasts/health-veritas/dr-lisa-leffert-leading-in-anesthesiology) on the podcast—curious to hear your view, not the political reality but what you think about the National Health Service of England versus what we have here. And what are the balance of conclusions you come to about that?

**Zack Cooper:** I guess the way I think about it, when people ask me, I say one’s views about healthcare in the U.S. versus healthcare in England very much depend on who you are. So if I were unemployed, if I wasn’t fortunate to have some of the opportunities I have, undoubtedly I’d rather be in England, the care is excellent. Cost is never a barrier to access; often the way they limit who gets what is through waiting times. In the U.S., I think if you’re really fortunate, you can jump the queue in a lot of ways. You can buy your way out of problems; that has some huge upsides.

And I think particularly on the acute care side, the outcomes here often are a little bit better if you can get access to care. I guess my big takeaway from the NHS is I think it’s a remarkable institution that faces really tough issues with being financially solvent, with keeping up with the pay needs of their staff, but at its best offers world-class care that doesn’t price anybody out. And I think that’s pretty darn good. I don’t think it fits in the U.S. So I think it is not realistic in any number of ways, not least to which politically to sort of take it and spread it here.

**Howard Forman:** That’s where I come down on it also.

**Zack Cooper:** Yeah. And look, I think the other is—it’s a lot—you could introduce, potentially... I mean, we tried to introduce single-payer in Vermont, and that didn’t happen. It’s really hard in a country as big as the U.S. to have one health system and to run it ostensibly by command and control.

**Harlan Krumholz:** I want to say how much I value you as a friend. I want to say that we’re so lucky to have you as a colleague and that this work has just had such tangible impact on Americans. And by the way, the world looks too to what goes on here. So anyway, I want to thank you, Zack. You’re an exemplary teacher, also. You inspire people around you, and it’s a privilege to have you on the program.

**Zack Cooper:** I say the same back to both of you guys. So it’s a blast to be here with you. And you and I have a paper together, we even get the chance to write. So it’s good fun.

**Harlan Krumholz:** I got to see the magic happen.

**Howard Forman:** Thanks very much, Zack. Thanks for joining us.

**Harlan Krumholz:** Yep, thank you.

**Zack Cooper:** Thanks, guys.

**Harlan Krumholz:** Well, that was a terrific interview. And actually I could listen to Zack forever. He’s doing such important research, and he’s also just so articulate about it. I just love listening to him. Hey, so Howie, let’s get to what I always say is my favorite part of the show.

**Howard Forman:** Thank you.

**Harlan Krumholz:** That’s you. That’s you.

**Howard Forman:** So March 24th, for all of our listeners who don’t know it, is [World Tuberculosis Day](https://nam12.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.who.int%2Fcampaigns%2Fworld-tb-day&data=05%7C02%7Cted.ocallahan%40yale.edu%7Cdf1da58724db41e6001708dc4928fb32%7Cdd8cbebb21394df8b4114e3e87abeb5c%7C0%7C0%7C638465687570185862%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=EpGoARZztlo7jLPgXUpe1qSSdh6gNd8XkdmZRytnxcI%3D&reserved=0). So I spent the last few days brushing up on this deadly disease and why we should talk about it today. It remains the second leading cause of infectious disease death in the world after COVID-19, 1.3 million people dying annually, mostly in low- and middle-income countries. Thirteen percent of these were people living with HIV. Nearly 11 million people had tuberculosis in that same year. And it disproportionately is affecting poor people and those who are immunocompromised. And we’ll come back to that. The reality is that one in four people in the world has actually been infected with the mycobacterium that causes tuberculosis, but only a small percentage actually get the disease.

So is a difference between who gets exposed, who actually gets infected, and then who gets tuberculosis itself. So while we can continue to improve the social determinants that put people at risk for the disease through better housing and increased access to resources, we can do a lot through public health and healthcare too. For comparison, in the United States, 70% of cases are in non-U.S.-born individuals often because they are the most impoverished and live in close quarters where transmission from someone with disease is easier. And because they include many at-risk populations, TB is six times more likely in patients with HIV. And the other known risk factors are diabetes, malnourishment, and tobacco use.

So just this week, the World Health Organization [released a report](https://nam12.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.who.int%2Fnews%2Fitem%2F18-03-2024-who-urges-investments-for-the-scale-up-of-tuberculosis-screening-and-preventive-treatment&data=05%7C02%7Cted.ocallahan%40yale.edu%7Cdf1da58724db41e6001708dc4928fb32%7Cdd8cbebb21394df8b4114e3e87abeb5c%7C0%7C0%7C638465687570194745%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=o%2F6NoSIw7TMR5Pm4s0o9fxF5FGBMTLrFpze1ruM%2FFpM%3D&reserved=0) making the business case for aggressive screening and treatment for tuberculosis or infection in four countries: Brazil, Georgia, Kenya, and South Africa. They highlight evidence-based approaches to screen people at a high risk for developing tuberculosis, treating those who have it, because they point out 29% of those who actually have tuberculosis don’t even know they have it, and they don’t get treated. And also treating those who don’t necessarily have it but are at high risk for getting it, they show that the return on investment for these public health programs is a phenomenal net savings in all the countries from a societal perspective. In South Africa, where the return on investment is greatest, there is a 39 U.S. dollar return for every one dollar spent from a societal perspective. But as with so much in public health, this is easier said than done.

This needs to be an investment from public and/or private dollars and making the business case is only the first step. Gains from this program do flow to individuals, but the business case makes clear that it’s the overall society benefits that we need to be able to consider here. Getting the collective to provide the resources for such programs is not always easy. But in a year where [you and I have already talked](https://insights.som.yale.edu/podcasts/health-veritas/manisha-juthani-solving-infectious-disease-mysteries) about public health successes aimed at eradicating the Guinea worm globally and malaria and Cabo Verde, the prospect of eradicating tuberculosis is not so far-fetched. In fact, the WHO has set 2035 as a target for eradicating 90% of cases and 95% of deaths. Now, that sounds like a lot, but for what it’s worth, deaths due to TB are down 94% in the United States since 1960. So this is not pie in the sky. This is achievable. At least I really hope so.

**Harlan Krumholz:** I’m so glad you shared that. And what a great piece of news on the cusp of World Tuberculosis Day. I was thinking about that too. When I was in training, we would talk about tuberculosis. Of course, I do this clinic with the medical students at Haven Clinic, and there’s a lot of screening also going on there. Some latent TB is found. I’m always amazed and treat it, but it’s a success story. But like you said, we’re not done yet. And really it’s like this last mile, and maybe it’s longer than a mile, but it could be done.

**Howard Forman:** Can be done. It can be done.

**Harlan Krumholz:** Yeah. What a remarkable achievement it would be.

**Howard Forman:** Yep.

**Harlan Krumholz:** You’ve been listening to *Health & Veritas* with Harlan Krumholz and Howie Forman.

**Howard Forman:** So how did we do? To give us your feedback or to keep the conversation going, email us at [health.veritas@yale.edu](mailto:health.veritas@yale.edu) or follow us on [LinkedIn](https://www.linkedin.com/in/thehowie/), [Threads](https://www.threads.net/@harlankrum), [Twitter](https://twitter.com/hmkyale/), or wherever you find us.

**Harlan Krumholz:** We very much want to hear your feedback, questions or your own experiences with these topics. We’re interested in engaging with our audience, and if you like the podcast or if you even don’t, just [rate us](https://open.spotify.com/show/4c2teNbsnEjtymhpxmjmtg) and [review us](https://podcasts.apple.com/us/podcast/health-veritas/id1588414491). The feedback is always helpful to us. We always read the reviews, and it helps other listeners to find us.

**Howard Forman:** And if you have questions about the MBA for Executives program at the Yale School of Management, reach out via email for more information or check out our website at [som.yale.edu/emba](http://som.yale.edu/emba).

**Harlan Krumholz:** *Health & Veritas* is produced by the Yale School of Management and the Yale School of Public Health. Thanks to our researchers, Ines Gilles and Sophia Stumpf, Yale students who are simply amazing, and to our producer, Miranda Shafer, who makes this place sound great every week.

**Howard Forman:** They are amazing. Thank you very much to all of them. Talk to you soon, Harlan.