

UNEDITED TRANSCRIPT

The Economic Impacts of Deworming



FOR ECONOMICS AT UCHICAGO

Frontier research, global impact.

MICHAEL KREMER: Hi, I'm Michael Kremer. I'm a professor at the University of Chicago, and I direct the Development Innovation Lab here.

TED MIGUEL: I'm Ted Miguel. I'm a professor of economics at the University of California, Berkeley, and the faculty director of the Center for Effective Global Action.

KANIKA BAHL: Hi. I'm Kanika Bahl. I'm the CEO of Evidence Action, which oversees the Deworm the World Initiative.

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MICHAEL KREMER: So more than 1 billion people worldwide are at risk of intestinal worms, and they're particularly common among schoolchildren. And I had taught in secondary school in Kenya after I graduated from college, and in that area, worms are really common. And they can cause anemia. They can cause listlessness.

But they're not the worst health problem in the world. They don't typically kill people, like malaria would or HIV would, so it's not something that's necessarily at the top of the agenda of a health minister. But it is a really common problem. And in that particular area, more than 90% of kids had worms.

The treatment for deworming is extraordinarily inexpensive, pennies per dose. And the World Health Organization recommends that in places where a lot of kids are infected with worms that the treatment should just be routinely given through schools, what's called mass drug administration, because it's very safe, and it's actually cheaper to give the medicine to everyone than to test people for worms, which is very expensive and really not practical to do at large scale.

So I was working with a nonprofit organization, and they decided that they wanted to try implementing this World Health Organization recommendation. So that provided an opportunity to study the impact, because they structured the way the program was expanded over time in ways that made it possible to evaluate the impact. And that's when I connected with Ted, and we worked together to try to examine the impact.

TED MIGUEL: We were able to work closely in that first year with the Ministry of Health in Kenya, with the nonprofit working on this school health program. So we put in place a system to track students' attendance and dropouts in primary schools all over this region of Kenya. And it was that data that really formed the core of the research project.

MICHAEL KREMER: We saw this tremendous impact on children being able to stay at school. And being absent from school, either because you're absent on a particular day or because you dropped out, that actually fell by around a quarter. And since the program's so inexpensive, it was looking very cost-effective as a way to keep kids in school.

Now, that was the initial result that we saw. But then as we looked at the data more closely, we realized it wasn't just the children who were dewormed themselves who benefited, but other children in the same school, and even in nearby schools, also had lower worm loads and better educational outcomes,

presumably because the mass treatment decreased disease transmission.

KANIKA BAHL: As we saw this phenomenal research coming out, all of this promise, we then asked ourselves, how do we effectively work with governments to scale it up? This is a treatment, but it's a treatment where the benefits may be difficult to see. It requires tremendous logistical operations to actually set up these mass drug administrations.

And so our focus was really on working with partnerships, with governments to help them scale. And so looking at the research and asking ourselves, how do we go from a situation where a very small proportion of the 1 billion children who need deworming treatment are receiving it to one where a large proportion of them are?

And so we've partnered with governments across India, Nigeria, Kenya, Pakistan to help them reach hundreds of millions of children annually. So again, as we think about this question of the evidence to policy pipeline, I think deworming's just this really interesting case study where the evidence that Michael and Ted created have just served as this immense impetus for governments, for ourselves, for others to really take this to large scale.

[MUSIC PLAYING]

MICHAEL KREMER: We just published a paper in Proceedings of the National Academy of Sciences, where we looked at the impact 20 years later. And that's pretty unusual that one is able to follow up. But the results are really striking. And it turns out that these impacts are very persistent.

So we found that children who received deworming in schools for an extra two or three years, they earn 13% more 20 years later. If you think about this, this is something where the medicine itself costs only a few cents. The program overall costs less than \$1 per child per year. So if people are earning that much more 20 years later, if you think about this purely as an investment, when we're very conservative about this, the annual rate of return is 37%. The value of this just as an investment, it's phenomenal.

[MUSIC PLAYING]

TED MIGUEL: A lot of our research attention now is shifting towards not just studying the initial recipients of deworming, but also understanding what happens to the next generation, and could it be the case that receiving this health investment when you're a child affects your own children and their outcomes when you're an adult? And this analysis is still ongoing, but the initial analysis to date indicates that the children of the individuals who received more deworming are themselves healthier. And again, this is 20-something years later.

Speaking to the potential for important and intergenerational impacts and the possibility that investing in child health could contribute to breaking the cycle of poverty in Kenya and other settings where worm infections are widespread, one of the things that we're able to do is measure the kind of support that the individuals in our sample are able to provide for their elderly relatives, typically their parents, but even sometimes their grandparents. We measure how much they send to them in terms of money or gifts and provide support for them.

So one of the things that we're finding, which is also one of these broader benefits of the program, is the individuals who receive more deworming as children, who we found are earning more and had better

livelihoods themselves, they also send significantly more money as gifts and cash transfers to their elderly relatives. So it's another form of spillover that the whole family unit is benefiting from the increased productivity, economic productivity and earnings of the kids who received deworming.

MICHAEL KREMER: Evidence Action, because of its experience doing this in multiple places, has been able to play a key role in working with governments to help them learn from the experience of other countries set up systems to do this.

KANIKA BAHL: The ability of governments to do this with some assistance is just enormous. We've worked with, for example, the Indian government. We're in 11 states in India, and we support them in doing a National Deworming Day. Not only has the government taken this up, but they're actually funding a majority of the cost at this point, and it's reaching hundreds of millions of children.

So if you think about that, that means that an entire generation of Indian children will actually be healthier, more productive. Based on some of this upcoming research, it sounds like their children will be more healthy and more productive. And so that's just this really profound impact. We've been incredibly heartened to see what a large proportion of the worm burden that the governments we partner with are able to address.

TED MIGUEL: So one of the exciting things about the research is that we've been able to understand and digest the research results enough to really make them accessible to policymakers. And that's been a goal of mine and Michael's from the early days. And we've been working with other research centers to digest the results and present them to policymakers in ways that really speak to the needs of policymakers in ways that are really comprehensible to folks who are not technical experts on the science or on the research.

One of the things that we've done recently to advance that mission even further is Open Policy Analysis, or OPA. The goal of OPA is to take existing research estimates and really home in on the core aspects of the research that speak to policy decisions. Marrying some of the insights from the open science movement with the research on deworming has created a powerful tool, this OPA for deworming, that governments around the world can use when they're considering whether or not to adopt the policy.

KANIKA BAHL: We are incredibly excited about the power of OPA for a few reasons. With this analysis, we can provide a clearly grounded definition of the benefits for that country using their cost, using their worm burden. And with this tool, we can actually show governments and ministries of finance how an investment in deworming will result in an increase in the income base, and then show what that can translate into in terms of increased tax revenues.

For our own internal decision making, because we can tweak it, because we can use data from different countries, it helps us prioritize which are the next set of countries we want to expand into. And it gives us that quick snapshot of what the potential impact of deworming in a new geography will be.

TED MIGUEL: Our interest in the costs and benefits of deworming go back to the original research. What we've been able to do over time is, of course, build out the evidence base a lot. We don't have to speculate about what the long-run labor market gains are going to be of deworming. We've measured them now for 20-plus years.

The cost side has really clarified that the cost of these drugs has fallen a lot, especially as programs are

being implemented at scale around the world. So a lot of the things that we speculated about 20 years ago, we have really hard evidence on them now, and through open policy analysis, it can be presented clearly to partners and policymakers in a way that can continue allowing policymakers to make the best decisions for their populations.

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