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Avoiding pouring money down the rathole

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I want to tell you a story about polio vaccination teams I watched in northern Nigeria two years ago.

Northern Nigeria is one of the last remaining epicenters of the polio epidemic. It has been nearly impossible to vaccinate all the kids there because of the rumors that spread about the vaccine: that it is a plot by the West to make Muslim girls sterile, or that it contains the AIDS virus.

Actually, polio is one of the easiest-to-use vaccines we have – it comes in drops taken by mouth, so you don't have to be a trained health worker to give it. In the west, three doses usually produces lifelong immunity – if you are my age, it's the same vaccine you got as a child.

But in tropical countries with open sewers, it can take as many as 10 doses to get a "take". That means holding vaccine drives that reach every child under the age of 5 in an entire country 10 times or more – with about three months between each one. It's a logistical nightmare.

And if you don't wipe polio out, it spreads, because people are always on the move. The year before I went to northern Nigeria, I had tracked the cases right across that latitude in Africa – Nigeria, Niger, Chad, Sudan, the Red Sea ports – and I finally realized: It was Muslim pilgrims, heading across the continent by truck, to get on ferries to Mecca. Two cases actually made it to Saudi Arabia. One of them was in a Nigerian family living illegally in the hills outside Mecca that had visitors from home.

Fortunately, the Saudis are extremely well-prepared for this. Every year, during the hajj, they inoculate everyone who arrives for several diseases, unless they can prove they were vaccinated back home. I've never seen an article about it, but what the Saudis do is actually one of the great public health measures of the world.

But here I was, in rural Nigeria, outside of Kano, which is the de facto capital of Muslim Nigeria, watching teams go out to give drops.

It's important to understand this: The downside of polio vaccine is that you have to keep it refrigerated. If it gets warm, it goes bad. It has to stay cold even in villages of mud huts, with no electricity.

So most of the money that goes into polio actually goes into the "cold chain" – to buying freezers that are kept in small cities and towns all over Nigeria. To buying generators to run those freezers, and diesel for those generators. The freezers are for freezing ice packs that go into the Styrofoam boxes that the vaccinators carry.

So here I was, standing on the porch of a mosque, watching an organizer assemble teams. The vaccinators were supposed to pick up two Styrofoam boxes with shoulder straps, then get two frozen ice packs for each one, then 20 doses of vaccine. The recorders were supposed to pick up forms for recording the names of all the families they would visit, a regular pen for filling out the forms, a silver nitrate pen for permanently marking the thumbnails of children who'd been vaccinated, and a piece of chalk to mark on the outside of the house how many had been vaccinated inside, or – in supposedly secret code – whether the house contained a family that had refused vaccination.

I watched teams forming – and I saw girls who couldn't have been more than 13 years old pick up boxes and get in line – but not put any ice or vaccine in them. I mentioned this to the organizer. At first he didn't believe me. But then he went and checked.

And he explained to me later – the girls had not understood their instructions. They were young, and they were uneducated. He actually didn't really want young girls on his teams. He also didn't want men, though half of his team leaders were men. In many Muslim countries, families live in compounds, and a strange man may not even step into the compound unless the husband and father is home to invite him in. The ideal team would be made up entirely of mothers and grandmothers, because a woman who has already vaccinated her own children is much better at persuading a reluctant mother to vaccinate hers. But these (quote) "volunteer" jobs on the polio teams actually pay. They only pay two or three dollars a day, but that's real money in rural Nigeria.

But men are the ones who vote and hold the political power, so they show up and demand the jobs for themselves. The health department tries to resist,

saying "send your wives". But most men insist that their wives stay home with the children. So they send their teen-age daughters. But those girls often have no persuasive powers, since they are not mothers yet themselves. And they often can't read either – so they're no good at filling out the tally sheets. The job doesn't get done right.

And that was just the problem at the lowest ground level. We went to house after house. A lot of people wouldn't open their doors. I heard stories about families who changed the chalk marks on their houses, or who marked their children's thumbs with black ink, or simply screamed at the team to go away. Polio, they said, was no longer a problem. But their kids were dying from measles. Why weren't the teams bringing measles vaccine instead of polio?

I also sat in on meetings. Every village you went into, you had to have a polite sit down with the headman, to get his permission. And you had to sit down and drink tea with local state and federal health officials – and then every night you had to meet to review the day's progress. That drive lasted a week, and for the organizers, it was pretty much non-stop work from 7 in the morning to 9 or 10 at night. Often by flashlight because the power kept going out, even in Kano, the state capital.

At one meeting, the head of a local health district got angry at the Unicef team because they had given the $200 to hire minibuses for the vaccinators directly to the vaccination team leaders instead of to him. Unicef told me later they'd done that because last time, he had pocketed half the money. Then there were districts that reported they had no frozen icepacks. One of the officials told me – "I know that district chief. He's a real joker. We give him money to buy freezers, and he uses it to buy a refrigerator to keep his sodas in".

I'm telling this story to explain how incredibly hard it is to deliver even the simplest kind of health care in the third world, and how things can fall apart at the most fundamental levels. Everyone imagines that corruption is at the level of President Mobutu of Zaire siphoning off millions in US foreign aid or CIA money to build himself hotels in Switzerland. But another serious drain is the incremental one – things that can't get done or aren't done right because someone wants two or three dollars to do it. Nigeria is a country of 100 million people, and it is near the bottom of Transparency International's list of the most corrupt countries in the world – so you can imagine how many times the kinds of scenes I saw were repeated.

I recently had a very nice note from a young American woman who had made it her personal mission to help one remote village in Togo. She had already built them a school, a library and a nurse's office. Then, to fight malaria, she arranged a mosquito net giveaway. But she had to have her volunteers rip open the packaging before they handed them out – that way the poor people who got them wouldn't be able to re-sell them at the market. And she had to buy extra nets to use as bribes at the border so that the rest could get through. Then she even had to bribe the local medical officer with a couple so he wouldn't use a flimsy excuse to seize the whole shipment.

Westerners are often too polite or too politically correct to talk about this candidly. But any African who's not a member of the president's cabinet will tell you that this is sadly routine in many countries.

I was flabbergasted – and, frankly, impressed – when George Bush spoke as bluntly as he did during his swing through Africa in January. For example, he said to the presidents of Benin and Tanzania and Rwanda and Ghana (quote) "the United States wants to partner with leaders and the people, but we're not going to do so with people that steal money – pure and simple".

This wasn't covered in the American press, but he said it again and again, in every country he visited. I don't know if the leaders were upset or insulted. They didn't appear so, from the records I saw – although those were from the White House. In any case, it needed to be said.

There are, essentially, two models for fighting disease in the third world nowadays.

First, I should backtrack and give some historical perspective. The old model was the colonial model. You were England or France or Portugal, you had a colony. Because you owned it, you fought diseases that would kill your colonial officers working there, and that would weaken your native work force. Malaria is the classic example. But the colonizers are gone. Since they used work incentives as brutal as chopping off hands, no one misses them.

The other historical model – and the one that still often works best – is the missionary model. Hospitals, schools, universities – run by Catholic, Protestant or Muslim religious organizations. But they're usually run by people who devote their lives to it, live on pittances and are content to die in the traces doing God's work. In the 21st century, it's tough recruiting people like that.

(In the missionary model – but without the missionary aspects – I would include organizations like Medecins Sans Frontieres.

Noadays, the two best-funded models are the Global Fund model and the American model. The Global Fund requires the country to come up with a detailed

plan, and then hands the money to the country. Then, to keep track of the money, they hire a local auditor – usually the country office of Price Waterhouse Cooper. The American model, used by the Presidents Emergency Plan for AIDS Relief and the Presidents' Malaria Initiative, usually finds an American leading agency -- often a university or an NGO – to run the program in conjunction with local partners in Africa, gives it the grant, and lets them watch the money.

What you get is a tradeoff. If the program is run by the country, you have more local support. If you lack that, you inevitably end up with a public relations disaster – rumors spread that Westerners are imposing Western solutions on people – or even that Westerners are trying to sterilize them or kill them.

On the other hand, in the "locally-owned model", you probably have more opportunities for siphoning off money. The Global Fund has had to cut off several countries, including Uganda and Ukraine, because of evidence of that.

On the other-other hand, having Americans and Europeans earning $50,000 to $100,000 a year flying in and out, expecting air-conditioned Toyota Land Cruisers to drive around in and plane tickets to conferences and such can quickly add up to a perfectly legal but very expensive gravy train. How do you choose?

I can think of other models: the Millennium Village model, for example: you pick one village, pour tons of money into it, which you can keep fairly strict control over, and then hope that it sets the example for the rest of the country. But the danger is that you get one village that has a fleet of air-conditioned cars and laboratories with modern microscopes, and the government can't afford to duplicate it.

There's the company model: in remote parts of southern Africa, the best medical care is often delivered, at relatively little cost, by mining companies. It's the heir to the old colonial model, but for small, employed populations, it works.

There is also the Carter Center model for guinea worm. Their volunteers – very local people, rural villagers, thousands and thousands of them – are unpaid. They get t-shirts. But it's a very slow-moving campaign, because it's really about living with your neighbors and educating them about filtering water. I'm not sure it can be adapted to any other, faster-moving disease.

I don't have the solution for this. And even if I did, it would be useless. Because it would be suggested by a Westerner, and no solution to the corruption problem is going to be imposed by the West. It's going to have to come from Africans themselves, figuring out what is in their best interests. It may take a major change in the notion of ubuntu, because it may mean putting the good of the nation before the traditional notions of the good of the family, the village and the tribe. And that may take a while.

I do have a couple of principles, though, for getting a program going.

One: in Africa, you can't do anything without getting the President on your side.

Case in point: In fighting AIDS, Uganda has been one of Africa's biggest success stories. Adult prevalence was cut from 16 percent in 1992 to about 5 percent in 2003. The reasons are complicated – massive numbers of deaths may have helped. But it was also crucial that President Yoweri Museveni was one African leader who was not in denial about the disease. Museveni came to power in 1986 as the head of a guerrilla movement. He later sent 60 officers for training in Cuba. At a meeting of the Non-Aligned Nations, Fidel Castro took him aside and told him: You have a problem. The Cubans had given all Museveni's men medical exams; 18 were infected with the AIDS virus. Museveni realized quickly that any leader who comes to power through his army cannot afford to lose a third of his officer corps. He instigated the ABC model in his country – abstain, be faithful, use condoms, along with the campaign known as "zero grazing".

By the way – under the heading of "be careful what you wish for": Mr. Museveni also recently asked Parliament to pass a law condemning to death by hanging people who knowingly spread AIDS. (When you get the President on your side, you sometimes have to live with the President's methods.)

By contrast – you have the example of South Africa. President Thabo Mbeki took deep offense at early estimates that AIDS was widespread there because it implied that Africans were highly promiscuous – just the kind of conclusion, he said, that racist whites would enjoy. He was also upset that the South African medical establishment – which was then virtually all white – ridiculed his health minister and him in the early days of the epidemic for promoting Virodene P058 – which was touted as a miracle cure invented at the University of Pretoria, but later turned out to be quack medicine containing a dangerous solvent. His anger became so great that he essentially joined the AIDS denialist camp. For four years, he undermined efforts to distribute antiretroviral drugs. He appointed commissions to investigate the cause of AIDs that wasted months debating it. He appointed not one but two successive health ministers who questioned whether the disease is caused by a virus – one of whom still argues that garlic, lemons and beetroot help cure AIDS. That kind

of nonsense would make one laugh – but the sad truth is that those delays prevented tens of thousands of people from getting drugs that would have prolonged their lives. It even made it hard to get single doses of nevirapine to pregnant women, which would have saved their babies from early death – the blood of those babies, in my opinion, is on Thabo Mbeki's hands.

Second principle: You probably can't get the president on your side without getting the First Lady too.

Case in point: Uganda's anti-AIDS effort has lost some steam because Janet Museveni is a born-again Christian who turned against condoms. Government campaigns de-emphasize them, and there was a nationwide recall in 2004, claiming they were of poor quality. The media reported shortages. President Museveni is apparently only half-convinced – he hasn't banned condoms. But he does find reasons not to endorse them and to say abstinence and fidelity work better. (Western liberals, by the way, like to laugh at abstinence and fidelity as outdated Victorian notions. But the truth is that, in deeply religious and conservative societies like Africa's, they can be powerful forces for AIDS prevention.) But, either way, the pity is: condoms are one more weapon in AIDS prevention and, particularly for sex workers and for wives of infected men, you don't want that weapon lost. So you have to lobby the first lady too.

Third principle: it's good to have one of your own presidents, or a former president, pushing your cause. Presidents like to be importuned by presidents. And there is a great respect for the grand old man who was once in power, is not in jail, and is still fighting the good fight. Having someone like Jimmy Carter or Bill Clinton willing to travel to Africa and lobby Presidents there often makes all the difference. Presidents or former presidents of your countries can be similarly useful.

Fourth: Whenever possible, deliver goods, not cash. Nets, vaccines, pills. Anything can be sold, but it reduces temptation. Also, deliver skills. The teaching you do may be the most effective intervention you can offer, and "reselling it" is a good thing.

Fifth: Painful as it is – what you have to give, give it away free. This is obvious for vaccines – they are almost always given free. The thinking has changed recently on insecticide-treated nets, but they are now generally being given away free instead of sold cheaply. It is not so obvious with pills, but I think it is particularly true there. If you sell a cure, even for as little as $1, and word spreads that it works, you have created an incentive for someone else to make and market a counterfeit for 50 cents. The counterfeits will quickly take over the market. Since some counterfeits are made in the same factories – on the "night shift" – and may have small amounts of the active ingredient, resistance will be created – ruining your drug. This has happened repeatedly to malaria drugs – chloraquine and Fansidar. It has begun to happen again, in Southeast Asia, to artemisinin. (The world is at risk of its newest silver bullet against malaria again being turned into a rubber one.)

The second topic I want to address is the money spent on the other end – on research

The Gates Foundation has 39 billion dollars to spend. And they're just one donor. That sounds like a lot of money. It is a lot. But I want to tell you a story to put it in perspective.

Dr. Maurice Hilleman, who died 3 years ago, was a legend in the history of vaccines – he invented 40 of them for people and animals.

In 1963, in Pennsylvania, he isolated what became the mumps vaccine strain still used today. It's called the Jeryl Lynn vaccine because he got it from the back of the throat of his five-year-old daughter, Jeryl Lynn Hilleman, when she got mumps.

He weakened it by growing it in chicken eggs, then chicken embryo cells. And then he tested it – by having a pediatrician friend inject it into 46 youngsters in two homes for the mentally retarded.

Then he injected himself, and Jeryl Lynn's baby sister, Kirsten. He also tested it on about 400 healthy children recruited through local churches. The parents signed a consent form one sentence long: (quote) "I allow my child to get a mumps vaccine".

Some months later, the next time a mumps epidemic swept through Pennsylvania, the vaccinated children were protected. Half the children in the studies – in the homes for the retarded and on the outside – had been given nothing. They were the control group – and many of them developed mumps, whose complications include meningitis, deafness, sterility and diabetes.

The vaccine was licensed in 1967. It had taken only four years, and had been tested in only a few hundred children. It is now used in much of the world, and has saved hundreds of thousands of children.

Nowadays, of course, we would consider this monstrous.

But this was routine for that era. Retarded children, crammed together in institutions, were much more vulnerable to infectious disease. Many vaccines – including, probably those for mumps, measles, polio and hepatitis in your veins and those of your children – were first tested on them.

When healthy children were recruited, many parents were eager to cooperate, because they had seen the diseases kill their elder children, or their own brothers and sisters when they were young.

Needless to say, this isn't the way we do things now.

There are about 70 experimental malaria vaccines being tested now around the world. The Gates Foundation is paying for tests on eight of them. The one farthest along, made by GlaxoSmith Kline – has been in development for 21 years. It immunizes less than a third of the children who get it. That's not very good for a vaccine. But it's better than anything else out there. Before it stands a chance of being licensed, it must be tested on 16,000 more children in 10 countries.

It takes a long time because you can no longer simply inject kids and wait to see what happens. The control half can't just be given nothing – so they get a hepatitis vaccine instead. Also, in every trial, the children and their families must be offered good quality medical care, and mosquito nets and house spraying and insect repellent. This is the ethical way to do it – but it also substantially cuts down their chances of getting malaria, so it makes proving your vaccine works much, much harder. And as soon as you get the first data suggesting the vaccine does work, you have to stop the trial and give it to everyone.

That's why, nowadays, it costs about 100 million dollars to develop a vaccine, and can take 25 years, and the research results are sometimes shakier than you'd like them to be.

I'm not arguing against doing things the ethical way. I'm just trying to explain why Bill Gates must spend hundreds of millions more on a problem than, say, John D. Rockefeller would have. He has to pay for things that used to cost nothing.

Bill Gates is paying for the most complicated, most expensive advances, and he knows it – the vaccines and drugs that pharmaceutical companies have historically been reluctant to tackle because there is so little profit in them.

There are many other interventions that are not nearly so expensive.

$1 million from Rockefeller in 1909 made huge inroads against hookworms, which enter the body through the feet. They live in your gut and suck blood from your intestinal walls. They can leave a child stunted in growth and too lethargic to go to school. The medicine was harsh, there was no vaccine. The way to avoid the worms was to never stand in dirt that other people had pooped in, and to wear shoes.

Rockefeller didn't buy shoes. But churches and schools gathering old shoes to ship to people in worm areas became an important part of the effort. (Not unlike today's efforts to raise money for mosquito nets.)

Most of Rockefeller's money went for education. Teaching people how to dig an out-house, and explaining why they should bother if there were woods nearby. You'd be surprised how difficult that can be. In another village in central Nigeria, where the CDC had a program to help people fight trachoma by building covered latrines, I met a man who told me he had dug a covered latrine, but he preferred to go into the bush. The shame of possibly meeting his mother-in-law coming out of the latrine was too hard to handle, he said.

To my mind, the most crucial thing you can fund is education. A major problem in Africa, one that doesn't get talked about nearly enough, is that too many people believe that disease is caused by witchcraft. Moreover, there is always suspicion, not only of solutions offered by white people, but of solutions offered by central government, which is often run by a rival tribe. The more public health workers you can train, like China's "barefoot doctors" (but, hopefully, wearing shoes) the more lives you can save. It may take only a few months of inexpensive education. People who live in the villages, speak the local dialect, and can explain why clean water is important, why digging latrines is worth it, and who can dispense immunizations, vitamin pills, rehydration packets, iodized salt, de-worming pills, antibiotics – those are the ones who make the biggest difference.

I'm going to be rash and make some predictions for the future.

I suspect that AIDS is not going to be solved in the lifetime of anyone in this room. A vaccine is now looking farther and farther off. I fear a cure cannot be found either, because the virus can hide in cells even better than the chickenpox virus, which can cause shingles 75 years after the initial infection. The drugs we have to suppress the virus are very complicated: three a day, every day, for life. And you have to keep changing them as resistance develops. On a continent where many people don't even get a once-a-year de-worming pill, that's a tall order. Right now, we don't even have a plan to get extra food to people on antiretrovirals – that's a major issue. People whose immune systems are recovering, whose appetites are returning, are hungry.

AIDS, I believe, will do exactly what it has been threatening to do for 20 years – kill 25 percent of the populations of some countries. But the countries will recover

financially, because their unemployment rates are so high. I think it will become a chronic fatal infection we learn to live with, sort of like syphilis was in the West between the 16th century and the invention of antibiotics in the 20th.

Education will slow the process, but each generation will lose many members to carelessness about sex. Westerners tend to sneer about that, but don't be surprised. I imagine almost everyone in this room has had – if not high-risk sex, at least sex you should have known better about. Many of us are just lucky that we don't swim in the highest-risk waters.

Tuberculosis, I expect, will go the same path, since it rides the same horse – a weakened immune system. I'm more confident of an eventual cure, because it's a bacterium, not a virus. And because a vaccine – a variant of an existing one – looks promising. However, in the meanwhile, it will keep evolving XDR-TB superstrains, which are virtually untreatable. This is a threat that the West has not even begun to come to grips with. I suspect there will be repeated outbreaks in the West – and the public health measures to contain them will be harsh. In South Africa, they are already literally jailing patients for months or years in hospitals surrounded by barbed wire (and at Christmastime and Easter, they break out to visit family, spreading the disease.)

Malaria, on the other hand, I'm somewhat optimistic about. Sir Richard Feachem, the first head of the Global Fund, has called it "the low-hanging fruit".

I don't believe for a minute that it will be eradicated in my lifetime – or that of Bill Gates, who is one year younger than me. Nor in that of our children.

But, with enough money – to pay for artemisinin combination drugs, mosquito nets, larvicides, DDT and new rapid tests – it can be crunched down to a much smaller problem.

However, it is a highly political disease. In Sri Lanka, for example, it went from 1 million cases in 1955 to 18 cases in 1963. Eighteen cases. Then spraying stopped. A civil war broke out. Cases shot up into the hundreds of thousands. Malaria goes up whenever war divides a country – or even when just tribalism does.

Other big killers are solvable, given enough money. In many cases, the solutions already exist, and are relatively cheap. In these I include many causes of diarrhea and pneumonia, as well as measles, polio, diphtheria, whooping cough, tetanus, worm diseases, iodine deficiency, iron deficiency and vitamin deficiency.

And, despite the Global Fund, despite PEPFAR, despite the Malaria Initiatives, the number one, most-needed public health measure in the world is still what it was in ancient Rome, Egypt and China: clean water.

Digging wells and building dams and aqueducts are still the most crucial things the world can do to save lives. But they're prohibitively expensive. As an alternative, cheap water filters are getting better all the time. Distributing them – and the people who can explain how to use them – may be the most cost-effective health measure the world can take.

It's a lot of money we're talking about – and it will take a lot of pressure on third world governments to make sure they use that money honestly. If that doesn't happen, the sources will simply dry up. The donors will back off again, as they had until a few years ago. And then, because diseases move faster than governments do, we're soon back where we started.

Thank you very much.