

2009 ANNUAL LETTER

from Bill Gates



This is the first annual letter I plan to write about my work at the Gates Foundation. In this letter I want to share in a frank way what our goals are and where progress is being made and where it is not. Soon after Warren Buffett made his incredible gift, which doubled the resources of the foundation, he encouraged me to follow his lead by writing an annual letter. I won't be quoting Mae West or trying to match his humor, but I will try to be equally candid.

Melinda will be sharing some of her thoughts in a video format each fall. Neither of these communications will replace the full annual report that we publish each year at www.gatesfoundation.org/annualreport.

This past July, I went from being full-time at Microsoft to being full-time at the foundation. I took a few weeks off for some family time, including a trip to Beijing for the Olympics, but I was anxious to keep myself mentally challenged and so the pause between jobs was brief.

Many of my friends were concerned that I wouldn't find the foundation work as engaging or rewarding as my work at Microsoft. I loved my work at Microsoft and it had been my primary focus for over 30 years. I too would have worried if I had paused and thought about it enough. My job at Microsoft had three magical things. First there was an opportunity for big breakthroughs—including changing computers from being expensive and only for big companies to being inexpensive and empowering to individuals with a wide range of great software for almost any task. I wanted a personal computer with great software for myself and everyone else. Second, I thought my skills would let me help create a special company that would be part of a whole new industry. I felt I belonged in the software business, having thought about the engineering and the business possibilities maniacally from age 13. Finally, the work let me engage with people who were smart and knew things I didn't. The day-to-day work always involved new problems and new ways of drawing out the best efforts from other people. We were always taking risks—some of which didn't pay off and some of which did. Most people don't have even one job that has all those elements, and my friends thought I wouldn't be able to avoid comparing my new work to what I had had at Microsoft.

Despite that high bar, I love the work at the foundation. Although there are many differences, it also has the three magical elements. First there are opportunities for big breakthroughs—from discovering new vaccines that can save millions of lives to developing new seeds that will let a farming family have better productivity, improve their children's nutrition, and sell some of the extra output. Second, I feel like my experience in building teams of smart people with different skill sets focused on tough long-term problems can be a real contribution. The common sense of the business world, with its urgency and focus, has strong applica-



With Melinda at Lee High School, Houston

tion in the philanthropic world. I am sure I will make mistakes in over-applying some elements from my previous experience and will need to adjust. For instance, the countries where Microsoft does business are far more stable and have a lot more infrastructure than most of the places where the foundation does its work, so I'll need to better appreciate how difficult it will be to execute our strategies. However, I am equally confident that our maniacal focus on drawing in the best talent and measuring results will make a difference. Finally, I find the intelligence and dedication of the people involved in these issues to be just as impressive as what I have seen before. Whether they are scientists at a university or people who have worked in the field in Africa most of their lives, they have critical knowledge and want to help make the breakthroughs. The opportunity to gather smart, creative people into teams and give them resources and guidance as they tackle the challenges is very fulfilling.

A special addition for me at the foundation is getting to work with Melinda. I met her at Microsoft, but we didn't get to work together as peers like we do now. She and I enjoy sharing ideas and talking about what we are learning. When one of us is being very optimistic, the other takes on the role of making sure we're thinking through all the tough issues.

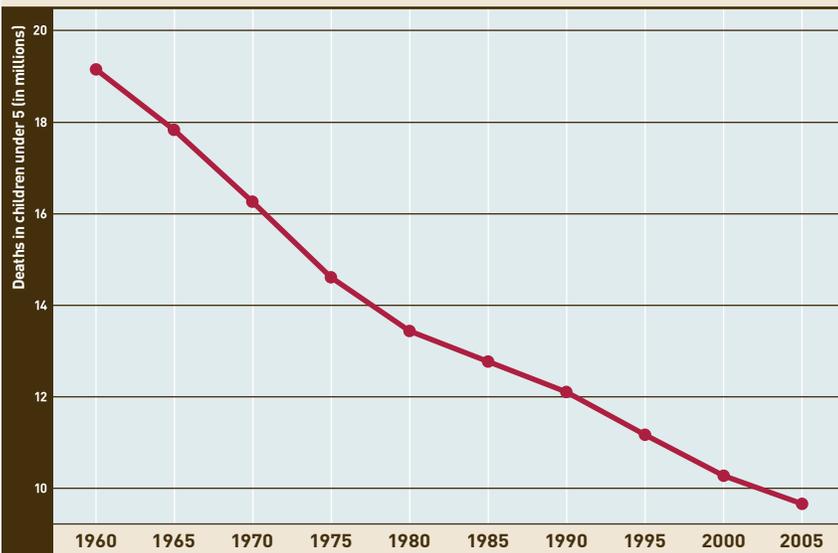
The foundation has learned a lot and has had a significant impact. I want to thank all of our employees and partners for what they have accomplished so far. I should acknowledge three people in particular. First is Patty Stonesifer, whom Melinda and I trusted to run the foundation and provide the leadership that built the teams and programs. The second is my dad, who plays a key role and embodies the thoughtfulness and the humility that the foundation hopes to achieve. I still have a lot to learn from him. I feel lucky that because of both of them we are already nine years down the learning curve. They both have done an amazing job. Finally I want to thank Jeff Raikes, who took over as CEO from Patty last fall, for the great work I know he will do with us in the years ahead.

There are so many interesting and important topics to write about that it's a challenge for me to keep my comments short. Each year I'll touch upon some of the things that are top of mind. In this year's letter I will share some observations and learning from the three areas we work in: Global Health, Global Development, and our U.S. Program. I will close with an update on three diseases that are particularly interesting and some thoughts on the role of foundations and the challenges caused by the global economic crisis.

Childhood Deaths

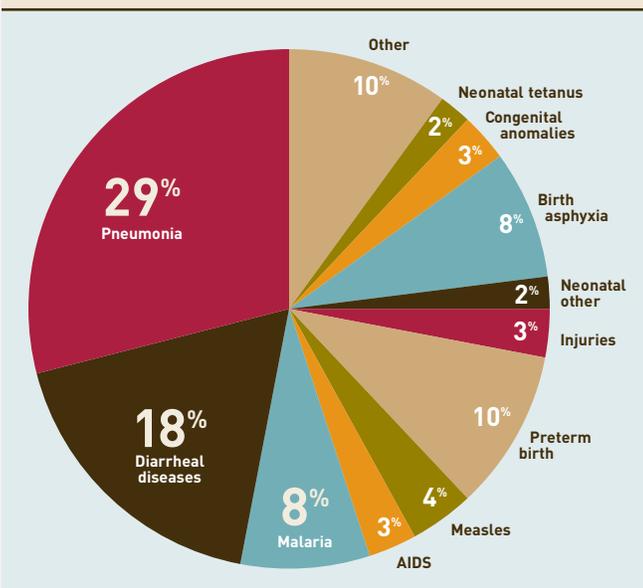
Over the past 50 years childhood deaths have dropped dramatically. Take a look at **Chart 1**, which is one of my favorites. (I hope you didn't think you were going to get through this letter without some figures being thrown at you.) What you see is that in 1960, when there were nearly 110 million children born, almost 20 million children under 5 died. In 2005, when more than 135 million children were born, fewer than 10 million children under 5 died. I think this is one of the most amazing statistics ever. The number of children born went up, while the number who died was cut in half. Two things caused this huge reduction in the death rate. First, incomes went up, and with that increase, nutrition, medical care, and living conditions improved. The second factor is that even where

CHART 1: The number of children who die before age 5 has been cut in half.



Source: Murray CJL, Laakso T, Shibuya K, Hill K, Lopez AD. "Can we achieve Millennium Development Goal 4? New analysis of country trends and forecasts for under-5 mortality to 2015." *Lancet* 2007; 370: 1040-1054.

CHART 2: A few diseases cause over half of children's deaths.



Sources: http://www.unicef.org/health/files/The_State_of_the_Worlds_Children_2008.pdf, http://www.unicef.org/publications/files/Progress_for_Children_No_6_revised.pdf

incomes did not go up, the availability of life-saving vaccines reduced the number of deaths. For example, measles accounted for 4 million children's deaths in 1990, but fewer than 250,000 in 2006.

Despite this progress, 10 million children dying is still 10 million too many. Each death is a tragedy. In the United States we don't think much about young people dying because it is so rare. It would be a huge breakthrough to cut that 10 million in half again, which I believe can be done in the next 20 years. **Chart 2** shows a breakdown of what kills children under 5. As you can see, there are a few diseases, like diarrhea, malaria, and pneumonia, that cause over half of the deaths. The key to eliminating these conditions is the invention of a handful of new vaccines and getting them into widespread usage.

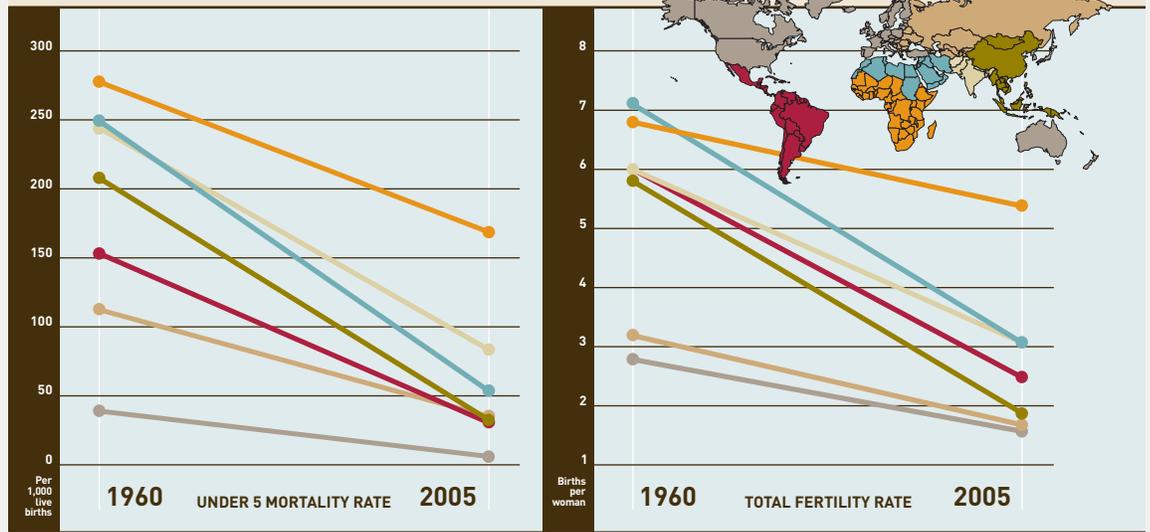
When Melinda and I first started our giving, in the late 1990s, our focus was on reproductive health rather than childhood deaths. We felt that giving mothers the tools to limit their family size to what they wanted would have a catalytic effect by reducing population growth and making it easier to feed, educate, and provide jobs for the children who were born.

We were surprised when we saw a newspaper article in 1998 showing that only a few diseases cause most childhood deaths and showing how little money was being invested in creating and providing vaccines for these diseases. A chart in the article showed that a particular type of diarrheal disease—rotavirus—was killing over 400,000 children per year. How could a disease we had never heard of get so little attention and kill this many children? We sent the article to my father and asked him to look into how we could help.



Child with malaria, Mpigi, Uganda

CHART 3: Better health is linked to smaller families.



Source: Institute for Health Metrics and Evaluation

Source: <http://data.un.org>

A surprising but critical fact we learned was that reducing the number of deaths actually reduces population growth. **Chart 3** shows the strong connection between infant mortality rates and fertility rates. Contrary to the Malthusian view that population will grow to the limit of however many kids can be fed, in fact parents choose to have enough kids to give them a high chance that several will survive to support them as they grow old. As the number of kids who survive to adulthood goes up, parents can achieve this goal without having as many children.

This means that improved health is critical to getting a country into the positive cycle of increasing education, stability, and wealth. When health improves, people have smaller families and the government has more resources per person, so improving nutrition and education becomes much easier. These investments also improve health, and a virtuous cycle begins that takes a country out of poverty. This was a huge revelation for Melinda and me. It is why we expanded our focus from reproductive health to all of the major infectious diseases. Today the foundation's Global Health Program, which accounts for about 50 percent of our total spending, focuses on 20 diseases. The top five are: diarrheal diseases (including rotavirus), pneumonia, and malaria—which mostly kill kids—and AIDS and TB, which mostly kill adults.

Ten years have passed since Melinda and I were shocked by the number of deaths and lack of focus on rotavirus. Unfortunately, the death toll has not yet been reduced. Two vaccines for rotavirus are now being used widely in rich countries. We need to get them into use in poor countries, but there are some significant challenges that have caused delays.

Each country wants to be sure that rotavirus is a big enough problem in their country to justify adding the rotavirus vaccine to the set of vaccines that their newborn children receive. They need additional funding, because a new vaccine costs over \$20 per child—sometimes much more. (Usually this cost comes down to less than \$1, but only after several decades.) A particular challenge for vaccines is that they need to be kept cold in refrigerators because they spoil if their temperature gets above 40 degrees Fahrenheit for very long. So adding a new vaccine, like one for rotavirus, that needs a lot of refrigerator space requires increasing the refrigeration capacity at every stage of the entire delivery chain, including very remote areas that don't have electricity. The foundation is working with a grantee, the GAVI Alliance, and others to get a rotavirus vaccine into widespread use.



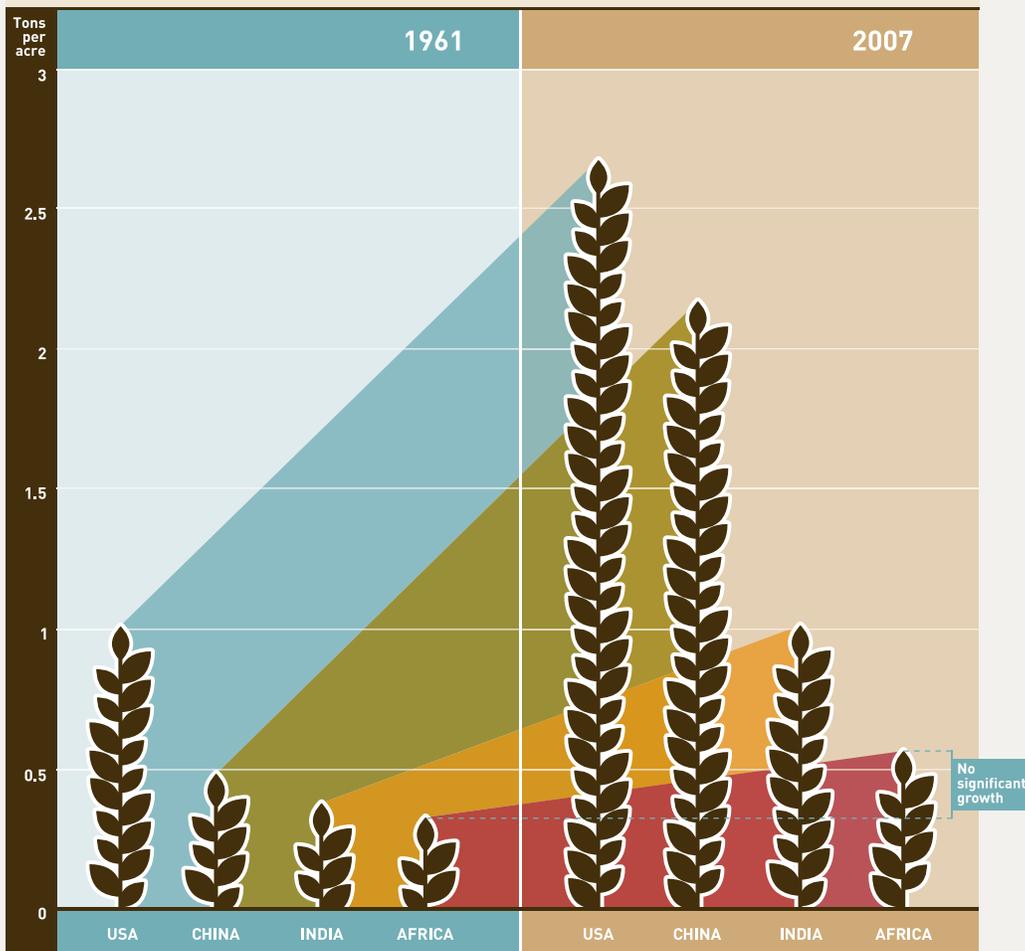
We know it can be done. In the past eight years, GAVI has added a vaccine to prevent liver cancer (Hepatitis B) and one to prevent respiratory disease (*Haemophilus influenzae* type b) to the standard group of six vaccines in a large number of countries. Nothing on the planet saves children's lives more effectively and inexpensively than vaccines. I believe that within six years we will have enough distribution to have cut the number of rotavirus deaths in half. This is an ambitious goal, but it's one of the key steps to cutting the overall number of childhood deaths from 10 million to 5 million.

At the foundation we are getting even more focused on our top health priority, which is helping to make sure that vaccines are developed and delivered to fight these diseases. With a handful of new vaccines, we should be able to save a year of a person's life for well under \$100. If we waste \$500,000, we are wasting 5,000 years of life. This is the kind of trade-off I ask our employees to consider when they are deciding which areas to get involved in and which grants to make.

Agriculture

As Melinda and I learned about health, we also learned about other opportunities to help the poorest move to a path of self-sufficiency and wealth creation. We thought it would be a shame to help save a child from rotavirus if she would still be chronically undernourished and never be able to earn or save money. About 2.5 billion people live on less than \$2 a day. More than 900 million suffer from chronic hunger, and most of them live in rural areas of developing countries. This is why the foundation added our Global Development Program to complement the Global Health group two years ago. We are working in areas like financial services, including savings and insurance. Our biggest investment is in improving agricultural output, another area where innovations have made a huge difference for millions of people but have not reached the poorest, especially in Africa and South Asia.

CHART 4: Africa missed out on the Green Revolution.



Source: <http://faostat.fao.org>

New seeds and other inputs like fertilizer allow a farmer to increase her farm's output significantly, instead of just growing enough food to subsist. This innovation is just as important as developing and delivering vaccinations. The additional output means her children get better nutrition, which improves their health and ability to learn. (In many poor countries, most farmers are women.) It also allows the family to save food and money so they can withstand a year with bad weather, which will be happening more often to poor farmers because of climate change.

As farming families do better, they start to put their kids in school for longer

periods. Almost every country that has become wealthy started with a huge increase in farming productivity. **Chart 4** shows the increase in output per acre for various grains, including wheat, corn, and rice, in the United States, India, China, and Africa since 1961. This dramatic increase in output—more than three times—is often called the Green Revolution.

Africa jumps out as the only case where this increase has not taken place. A big reason is that African countries have widely varying climate conditions, and there hasn't been the same investment in creating the seeds that fit those conditions. Because agriculture is an essential part of economic growth for most African countries, we are working with others to fund a "Green Revolution for Africa" and other areas that could benefit from this kind of investment. Since I grew up as a city boy and didn't know anything about farming, I have been on a steep learning curve to understand things like fertilizer, drip irrigation, plant breeding, and which crops are best for which conditions. Our goal is to help 150 million of the poorest farming households in Sub-Saharan Africa and South Asia triple their incomes by 2025.

A big challenge in achieving this goal is that climate change will be making weather conditions more extreme—triggering both droughts and floods—in the tropical areas where most of the poor live. The negative effects will fall almost entirely on the poor, even though they did not cause the problem. I hope that the increased public interest in reducing climate change will also increase the political will to provide aid that will help the poor mitigate its negative effects. It is interesting how often the impact of climate change is illustrated by talking about the problems the polar bears will face rather than the much greater number of poor people who will die unless significant investments are made to help them.



Agricultural research,
University of KwaZulu-Natal,
Pietermaritzburg, South Africa



Improved variety of rice, Kikoko Village, Uganda



KIPP school, Houston

I have been talking a lot in this letter about technological solutions like new seeds and vaccines. Our optimism about technology is a fundamental part of the foundation's approach. Advances in science have played a huge role in improving the living conditions in the rich world over the past century. Technology is also a personal passion of Melinda's and mine. So we try to point scientific research toward the problems of the poor, like agriculture. This is why we tend not to fund other important things like building health clinics or roads, which are better left to governments.

Some people criticize this approach, saying either that the problems can't be solved with technology, or that the technology only works if it reaches the people who need it. There is some validity to both of these points. In agriculture, the foundation is funding research into new seeds, but we are also funding pilot projects for non-technological solutions like new agricultural extension services that teach farmers basic techniques like irrigation or crop rotation. And when we do fund research on technology, we emphasize that it must take into account the needs of the poorest. For instance, new seeds must be tailored for the climates in which they'll be grown, and they have to produce the kind of foods that people like to eat in those areas. Technology is only useful if it helps people improve their lives, not as an end in itself.

U.S. Education

I was lucky enough to accumulate the wealth that is going into the foundation because I got a great education and was born in the United States, where innovation and risk-taking are rewarded. Warren Buffett is very articulate about how every American, including him, is lucky to have been born here. He calls us winners of the "ovarian lottery."

But even within the United States, there is a big gap between people who get the chance to make the most of their talents and those who don't. Melinda and I believe that providing everyone with a great education is the key to closing this gap. If your parents are poor, you need a good education in order to have the equal opportunity that our founders promoted for every citizen. And for the country as a whole, we believe improving education is the key to retaining our position of world leadership in all areas, including starting great businesses and doing innovative research. So in addition to the foundation's work to improve the lives of the poorest worldwide, we started our U.S. Program to help reduce inequity in the United States.



Lee High School, Houston

The private high school I attended, Lakeside in Seattle, made a huge difference in my life. The teachers fueled my interests and encouraged me to read and learn as much as I could. Without those teachers I never would have gotten on the path of getting deeply engaged in math and software. Melinda first started using computers when she was in high school, at a time when that was still unusual, and then she got to study computer science and business in college, which led to a great career at Microsoft.

How many kids don't get the same chance to achieve their full potential? The number is very large. Every year, one million kids drop out of high school. Only 71 percent of kids graduate from high school within four years, and for minorities the numbers are even worse—58 percent for Hispanics and 55 percent for African Americans. If the decline in childhood deaths I mentioned earlier is one of the most positive statistics ever, these are some of the most negative. The federal No Child Left Behind Act isn't perfect, but it has forced us to look at each school's results and realize how poorly we are doing overall. It surprises me that more parents are not upset about the education their own kids are receiving.

Nine years ago, the foundation decided to invest in helping to create better high schools, and we have made over \$2 billion in grants. The goal was to give schools extra money for a period of time to make changes in the way they were organized (including reducing their size), in how the teachers worked, and in the curriculum. The hope was that after a few years they would operate at the same cost per student as before, but they would have become much more effective.

Many of the small schools that we invested in did not improve students' achievement in any significant way. These tended to be the schools that did not take radical steps to change the culture, such as allowing the principal to pick the team of teachers or change the curriculum. We had less success trying to change an existing school than helping to create a new school.

Even so, many schools had higher attendance and graduation rates than their peers. While we were pleased with these improvements, we are trying to raise college-ready graduation rates, and in most cases, we fell short.

But a few of the schools that we funded achieved something amazing. They replaced schools with low expectations and low results with ones that have high expectations and high results. These schools are not selective in whom they admit, and they are overwhelmingly serving kids in poor areas, most of whose parents did not go to college. Almost all of these schools are charter schools that have significantly longer school days than other schools.

I have had a chance to spend time at a number of these schools, including High Tech High in San Diego and the Knowledge Is Power Program, or "KIPP," in Houston. There is a wonderful new book out about KIPP called *Work Hard. Be Nice.*, by the education reporter Jay Mathews. It's an inspiring look at how KIPP has accomplished these amazing results and the barriers they faced.

It is invigorating and inspirational to meet with the students and teachers in these schools and hear about their aspirations. They talk about how the schools they were in before did not challenge them and how their new school engages all of their abilities. These schools aim to have all of their kids enter four-year colleges, and many of them achieve that goal with 90 percent to 100 percent of their students. Every visit energizes me to work to get most high schools to be like this.

These successes and failures have underscored the need to aim high and embrace change in America's schools. Our goal as a nation should be to ensure that 80 percent of our students graduate from high school fully ready to attend college by 2025. This goal will probably be more difficult to achieve than anything else the foundation works on, because change comes so slowly and is so hard to measure.



Administering polio vaccine, Hanoi, Vietnam

Unlike scientists developing a vaccine, it is hard to test with scientific certainty what works in schools. If one school's students do better than another school's, how do you determine the exact cause? But the difficulty of the problem does not make it any less important to solve. And as the successes show, some schools are making real progress.

Based on what the foundation has learned so far, we have refined our strategy. We will continue to invest in replicating the school models that worked the best. Almost all of these schools are charter schools. Many states have limits on charter schools, including giving them less funding than other schools. Educational innovation and overall improvement will go a lot faster if the charter school limits and funding rules are changed.

One of the key things these schools have done is help their teachers be more effective in the classroom. It is amazing how big a difference a great teacher makes versus an ineffective one. Research shows that there is only half as much variation in student achievement between schools as there is among classrooms in the same school. If you want your child to get the best education possible, it is actually more important to get him assigned to a great teacher than to a great school.

Whenever I talk to teachers, it is clear that they want to be great, but they need better tools so they can measure their progress and keep improving. So our new strategy focuses on learning why some teachers are so much more effective than others and how best practices can be spread throughout the education system so that the average quality goes up. We will work with some of the best teachers to put their lectures online as a model for other teachers and as a resource for students.

Finally, our foundation has learned that graduating from high school is not enough anymore. To earn enough to raise a family, you need some kind of college degree, whether it's a certificate or an associate's degree or a bachelor's degree. So last year we started making grants to help more students graduate from college. Our focus will be on helping improve community colleges and reducing the number of kids who start community college but don't finish.

Progress on Polio, AIDS, and Malaria

The foundation's aggressive goals for our health and development work are only realistic because of the basic scientific advances that have been made recently and continue to be made. Investments in research and development by large governments and private companies drive this rapid increase in understanding of medicine and agriculture. The U.S. National Institutes of Health spend about \$30 billion per year on biological research. American pharmaceutical, biotech, and crop science companies spend an additional \$60 billion. Genome sequencing is a great example of how research by the private and public sectors can benefit the very poor. Scientists, including many funded by the foundation, are using the data from genomic sequencing to design new drugs and vaccines. Our role as a foundation is to help make sure the new science is applied to the needs of the poor, because the marketplace doesn't respond when buyers have almost no money.

Polio is another good example of what can happen when you take innovations that benefit the rich world and apply them in the poor world. The book *Polio: An American Story*, by David Oshinsky, tells



Tuberculosis chest X-ray at a clinic in Andhra Pradesh, India



Hashmin and her mother in New Delhi

the story of how Franklin Delano Roosevelt's polio raised public awareness of the disease and made it possible to raise money for research into a vaccine. The vaccine work was done in the United States in the 1950s, supported by the March of Dimes. Polio was eliminated from the United States in 1979.

Because of that success, in 1988 the world adopted a goal of making polio the second disease to be eliminated, after smallpox. The United Nations Fund for Children and the World Health Organization led the charge. Rotary International has been a primary supporter of the work, and we wouldn't be anywhere on this without their efforts.

Many people probably think polio has already been eradicated, because it gets so little press coverage, especially in rich countries. But there is still a significant amount of polio in four countries, with most of the cases coming from India and Nigeria. Eliminating it will require continued investment. Many people had hoped that it would be eradicated by now, but it has proven more difficult than expected. Researchers have learned that in some parts of India kids need to receive more than eight doses of the vaccine before they are protected. The government of India has done a very good job distributing it, but with the limited power of the vaccine they will have to add some new tactics and keep up the effort for several more years. Given all of their health priorities this is not easy. I met with the Indian prime minister and health minister this past November and feel sure they will do their part. The picture on the lower left shows a beautiful and happy 9-month-old girl named Hashmin, whom I met last year in a slum in New Delhi. She had recently gotten polio. It was tragic to see the muscles in her legs wasting away. Now she will never be able to walk normally. When you meet children like Hashmin, you are reminded why eliminating polio is so important.

The most difficult place to achieve success will be northern Nigeria, where the vaccine is still not being given to enough children. In order to convince enough families to participate in the polio campaign, you need not only dedicated teams that track down all the children but also a clear message from political, tribal, and religious leaders that the vaccine is safe and should be taken. An intense effort is being applied to get all these factors to come together in northern Nigeria. I'm making a visit there next month. With a few more years of investment and hard work the world will have a success with polio, which will invigorate the whole field of global health.

Polio is a good example of why the foundation needs to be flexible in our strategies and budgets. Last year, Melinda and I met



Chaoyang CDC Clinic, Beijing

with our polio team to get an update on progress against the disease. The team was asking us to improve the same amount of money we had been spending for years, but they kept talking about the many challenges of eradicating polio. Melinda and I probed to understand if they were saying that the world needed to spend more, and whether our leading by example could help make it happen. They said yes, and within a month they had put together a more aggressive plan that involved us spending hundreds of millions more and getting other donors to step up as well. We approved the plan. Rotary International and other donors are doing a great job so far coming up with the extra resources that are needed. Just this month I went to a Rotary meeting and helped announce more than \$600 million in new money from various sources that will go toward eradicating polio. But none of this would have been possible if we didn't keep flexibility in our budget and stay open to changing our approach.

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On the AIDS front, you have probably read articles talking about failed trials of vaccines and microbicides. (A microbicide is a gel that a woman can use to protect herself from getting infected.) Although these results are setbacks, in each case we are learning and moving ahead with improved approaches. I am quite hopeful that in the next four to six years we will have either a pill or a microbicide that people can use to protect themselves temporarily from getting HIV. When used on a large scale they will dramatically reduce the annual rate of infection, which is currently 2.7 million. I feel a huge sense of urgency to make sure a pill or microbicide is developed as soon as possible. There are some great scientists working on this, and I am spending lots of time asking them what the bottlenecks are and understanding how we can make faster progress. The intensity reminds me of my time at Microsoft, when we were competing with other companies to make the best database or word processor. However, in this case the competitor is a virus and all of humanity is on the same team, wanting to work together to defeat the virus.

When we get a vaccine it will be even more impactful than a pill or a microbicide, because a vaccine will protect people for much longer. But given the complexities involved, even with the great work being done, it is very likely to be more than 10 years before we have one in widespread use.

To stay alive, people with HIV need to start using anti-retroviral drugs before their immune systems become weakened, usually within five years of becoming infected. In 2003, only 400,000 people were being treated, and now some 3 million are. That is a phenomenal increase. The biggest reason for it is that the United States funded the President's Emergency Plan for AIDS Relief and managed the effort very well. In addition the United States, along with a number of other countries, has funded the Global Fund for AIDS, Tuberculosis, and Malaria. This is a good example of how scientific innovations, in this case the invention of anti-retroviral drugs, can reach the poorest with help from governments, foundations, and drug companies. Although less than 5 percent of people with HIV/AIDS live in rich countries, it was the market demand from these wealthier patients that drove the large R&D investment in these drugs.

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Malaria kills nearly 1 million children per year, but companies and governments have invested very little in new drugs and vaccines because the disease has been eliminated from rich countries. Malaria has a fascinating history. Several Nobel prizes were given to scientists who helped us understand key facts about it—in 1902, 1907, 1927, and 1948. Malaria used to be a serious problem in large parts of the United States, but it was eliminated here by 1951 by large-scale campaigns to kill the mosquitoes that transmit the disease.

Fortunately, the past five years have seen a huge increase in the level of interest and investment in malaria. The foundation can probably take some credit for the increased level of interest in global health in general and malaria in particular. Bono also deserves a lot of credit for his work through ONE. I remember talking with him in 2004 about whether we could ever hope to have candidates discussing these issues during a political campaign. So during the recent U.S. presidential campaign it was fantastic that both Barack Obama and John McCain spoke out on how they would increase funding for global health, including specific commitments on malaria. It is also very exciting that donations from individuals to buy life-saving bed nets have soared.

Malaria is a very tricky disease. The world hoped in the 1950s and 1960s that it could be eliminated by killing mosquitoes with DDT, but that tactic failed when the mosquitoes evolved to be resistant to the chemical. Today a number of new tools are being developed—better bed nets, better drugs, better insecticides, and a number of vaccine candidates. One of the vaccines will go into the last phase of human trials this year and could be ready for wide use by 2014. None of these tools is perfect. To understand how we should combine them, we brought in an expert in mathematical modeling who is applying a technique called Monte Carlo Simulations. This modeling work, which will show where we can eliminate malaria and where we can just reduce the disease burden, is a wonderful use of advanced mathematics to save lives, and if it goes as well as I expect, we will apply it to other diseases. The malaria community has a goal to reduce deaths by over half by 2015, which is aggressive, but it is in line with the results in communities where bed nets and other tools have been rolled out.



With Bill Gates Sr. at the foundation's offices, Seattle



Cassava processing plant, Karsana, Nigeria

The Role of Foundations

A key question for Melinda and me is, Where are foundations uniquely suited to causing positive change? Foundations are not needed in areas where capitalistic market signals work well and the poorest aren't left out. If someone told you there was a foundation looking into what kind of restaurants should be started and helping them get started, you would rightly wonder why nonprofit dollars were being spent in that way. Foundations provide something unique when they work on behalf of the poor, who have no market power, or when they work in areas like health or education, where the market doesn't naturally work toward the right goals and where the innovation requires long-term investments. These investments are high-risk and high-reward. But the reward isn't measured by financial gain, it's measured by the number of lives saved or people lifted out of poverty.

Foundations are unusual because they don't have to worry about being voted out at the next election or board meeting. But I do not hold them out as a panacea. Another way that running a foundation is not like running a business is that you don't have customers who beat you up when you get things wrong or competitors who work to take those customers away from you. You don't have a stock price that goes up and down to tell you how you're doing. This lack of a natural feedback loop means that we as a foundation have to be even more careful in picking our goals and being honest with ourselves when we are not achieving them.

We work hard to get lots of feedback. Each of our three divisions has gotten great people to participate in an advisory panel that reviews their strategies. In addition, every significant grant is reviewed by a number of outside experts. And as we execute our strategies, we need to share what we learn, because the biggest leverage is in getting many others to adopt best practices. Since we are in this for the long run, we need to develop credibility by the strength of our evidence, and by not claiming to know more than we do.

Every year, Melinda and I want to make sure we are taking a hard look at where the foundation should get involved and where it should stay out. In the areas we work in, we want to make sure the foundation is drawing in other players in the best way we can. Given the business sector's broad expertise and resources, we particularly need to get more of its innovation power focused on our issues. I have spoken a lot in the past year about "creative capitalism," which outlines the incentives and benefits to make this happen. Next year I hope to have some examples of how this has made a difference.



World Economic Forum, Davos, Switzerland



U.S. humanitarian aid, Monrovia, Liberia

The Economic Crisis

The financial market and economic conditions that have developed this past year are truly unprecedented. I hope two years from now when I write this letter I can look at this section as a reflection of something that was short-term and that has passed, but I think the effects of the crisis will last beyond that.

Warren recently sent me an excerpt from John Maynard Keynes' essay "The Great Slump of 1930," which applies to this crisis as well:

This is a nightmare, which will pass away with the morning. For the resources of nature and men's devices are just as fertile and productive as they were. The rate of our progress towards solving the material problems of life is not less rapid. We are as capable as before of affording for everyone a high standard of life—high, I mean, compared with, say, twenty years ago—and will soon learn to afford a standard higher still. We were not previously deceived. But today we have involved ourselves in a colossal muddle, having blundered in the control of a delicate machine, the working of which we do not understand. The result is that our possibilities of wealth may run to waste for a time—perhaps for a long time.

If you take a longer timeframe, such as five to ten years, I am very optimistic that these problems will be behind us. A key reason for this is that innovation in every field—from software and materials science to genetics and energy generation—is moving

forward at a pace that can bring real progress in solving big problems. These innovations will help improve the world and reinvigorate the world economy.

Looking specifically at the foundation, our assets decreased in value by about 20 percent in 2008. I never thought I would say losing 20 percent is a reasonable result, but it is better than most endowments because so many asset classes went down by more than 20 percent in 2008. The team led by Michael Larson that handles the investments has always done a great job. During the past five years, as the foundation was growing, we spent a bit over 5 percent of its assets each year in addition to the gift from Warren. There is nothing magic about the 5 percent figure, except that it is the minimum required by the IRS. Our spending in 2008 was \$3.3 billion. In 2009, instead of reducing this amount, we are choosing to increase it to \$3.8 billion, which is about 7 percent of our assets.

Although spending at this level will reduce the assets more quickly, the goal of our foundation is to make investments whose payback to society is very high rather than to pay out the minimum to make the endowment last as long as possible.

The global recession and market turmoil are forcing everyone to take a hard look at their plans. Businesses and consumers are cutting back on spending. The 50-year-long credit expansion that fueled high spending levels, particularly in the United States, has turned into a credit contraction. Governments face revenue shortfalls at the same time their citizens need government services more



Warren Buffett announcing his pledge to the foundation, June 2006, New York City

than ever. A great example of this is education. Recent improvements taking place in K–12 education could be reversed because of budget cuts. State-funded two-year and four-year colleges will see record demand but may also face spending cuts. As governments respond to the crisis, they need to protect these investments even as they spend to stimulate the economy. In the United States only the federal government can do deficit spending and increase its investment in long-term goals like education. I am impressed with the way President Obama has talked about the need to do both and has his team looking at investments that fulfill both goals.

Like education funding, I see foreign aid that is spent wisely as being a smart thing even during these tough times. I hope the United States and other rich countries will continue to increase their aid, and when I meet with political leaders I encourage them to do so. The British prime ministers Tony Blair and Gordon Brown have been great about this. The most generous aid givers in proportion to the size of their economy are Norway, Sweden, Denmark, and the Netherlands. By this measure the big European countries are quite a bit more generous than the United States. Most of those that were not already large donors have increased significantly since the European Union and G-8 made new commitments in 2005. The current Italian government stands out because it is not only falling short on the increases but is actually cutting its aid budget. I don't think this is because Italians care less about the issues, so I'm hopeful the government will find a way to restore this funding as part of its policy proposals when it hosts a G-8 summit this year.

Although it will be difficult to keep aid-related issues on the front page during this crisis, we need to meet the challenge by making sure the success stories are told and making sure that inequity that is out of sight is not out of mind. Only with broad public awareness and voter interest will we keep aid on the positive track it needs to stay on.

I am impressed by individuals who continue to give generously even in these difficult times. I believe that the wealthy have a responsibility to invest in addressing inequity. This is especially true when the



Cesar Alvarez (far left), Lee High School, Houston

constraints on others are so great. Otherwise, we will come out of the economic downturn in a world that is even more unequal, with greater inequities in health and education, and fewer opportunities for people to improve their lives. There is no reason to accept that, when we know how to make huge gains over the long term.

The commitment that Melinda and I have made to this work is not dependent on it being easy or short-term. We can make this commitment because of the amazing people we meet whenever we travel for the foundation. I want to close this letter with a story about one person we met when we visited some schools in Texas last year. At Lee High School in Houston, we met a principal named Cesar Alvarez. Cesar told us about a student who had come to school as a freshman three years before and was in a gang. He was far behind in school, and he wouldn't even talk in class. Cesar got very involved with this student and worked with him every day. Today the student is a senior, on course to graduate, and planning to go to college. When Cesar came to this part of the story, he broke down and cried, because he had worked so hard and practically worn himself out for that student.

Melinda and I see this kind of dedication around the world and in every issue the foundation works on. It inspires us to help people do great work, and we feel very lucky to be able to support them. I know the foundation will have its share of setbacks. But I feel sure I will have lots of success stories to share in the years ahead.

Bill Gates

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