

## From awareness to action

Regina Rabinovich manages a portfolio of more than US\$ 1 billion of grants in infectious disease work at the Bill & Melinda Gates Foundation. She talks with Sarah Cumberland about the challenges and successes of working in global health.

*Q: With limited money to deal with so many public health challenges in the world, how does the Gates Foundation decide where to allocate funds?*

A: [The] Gates [Foundation] takes a problem, whether it be malaria, pneumonia or HIV, and does a fairly lengthy strategy process to map out the problems and potential solutions. We look at who the partners are and where we can intervene to make the most impact. It can take many months of consultation to figure out what the world is doing to try to solve this problem and what the Foundation can do to help achieve those goals. We have to make tough decisions about what we do and don't fund.

*Q: Can you name an example of how the Foundation works with existing projects?*

A: One of the Foundation's first projects in China was with the Chengdu Institute of Biological Products that had developed a vaccine for Japanese encephalitis a decade ago. While several vaccines were already available, this one is a live attenuated, single-dose vaccine that has demonstrated safety and is suitable for use in developing countries. The company was already producing and exporting the vaccine but it needed help with preparing its clinical data to obtain World Health Organization [WHO] prequalification, which would allow it to be purchased for use by UNICEF [United Nations Children's Fund] and GAVI [formerly Global Alliance for Vaccines and Immunisation]. Gates came in and helped fund studies to add to the clinical file and to ramp up the company's production processes. We stood on the shoulders of the Rockefeller Foundation, which had made investments in the initial research in the previous decade. As in many other situations, we don't stand alone. All of our projects are owned by so many people. We're a grant-making organization. As hard as we work, we don't actually do anything. Our partners do the work!

*Q: If the Gates Foundation doesn't actually do anything, to what extent does it "call the tune"? How much independence do your partners have to determine their projects and carry them out as they see fit?*



Courtesy of the Bill & Melinda Gates Foundation

Regina Rabinovich

Regina Rabinovich is director of infectious diseases, Global Health Program, at the Bill & Melinda Gates Foundation. Prior to joining the Foundation in 2003, Rabinovich served in various vaccine development positions at the United States National Institute of Allergy and Infectious Diseases. In 1999, Rabinovich became director of the PATH Malaria Vaccine Initiative, a project funded by the Foundation to advance efforts to develop a malaria vaccine. She has a medical degree from Southern Illinois University and a Master of Public Health from the University of North Carolina in Chapel Hill.

A: As a grant-making organization we don't implement projects. We have no laboratories – they rest in academia and companies. We don't purchase commodities – UNICEF and countries do. We don't deliver vaccines – countries do. We don't develop policies for countries – WHO does. However, compared to other funders, we are more deeply engaged in the shaping of proposals, negotiating the deliverables and timelines, ensuring that the resources are appropriate for the task. We want our involvement to have the greatest impact. And because global health is so interdisciplinary, we may bring partners together to forge new alliances. It can, admittedly, create tensions but it is up to our staff to provide the added value. In the long term, we will be judged by the results of our funding.

“We make investments that are risky because they could have big payoffs.”

*Q: Has the Foundation funded projects that have not been successful?*

A: We do try to learn from our mistakes – that is a big component of our annual strategy and programme review process. Let's be clear, however, that failure is not necessarily a lack of success. We make investments that are risky because they could have big payoffs.

*Q: How have you seen global health evolve during your career?*

A: There's really been a surge of interest, basic researchers have started engaging academia in the science and technology of global health. We will need a more diverse set of players in the future, not just from schools of public health, for example, people with MBAs [Master of Business Administration], with management and finance experience, engineers and software developers. The problems that we face in global health not only require expertise in science and public health but all those other disciplines to be able to implement solutions that will have impact on the ground. We've also seen the active engagement of the pharmaceutical industry, including the expansion of quality high-volume producers, who recognize their role in generating solutions and scaling them up to meet global needs. For example, supply of drugs for HIV/AIDS, engagement in development of a new combination drug regimen for tuberculosis and large-scale manufacturing of ACTs [artemisinin-based combination therapy]. If we think back to where we were in 1995, we have witnessed a revolution in global health.

*Q: Why has there been this increased interest?*

A: We could attribute this interest in global health partly to the growth in information technology. Twenty years ago, it was very hard to visualize what was happening in Timbuktu. Today, you can have a videoconference with the people there, you can "tweet" your message out to the world.



WHO/R Barry

A woman is vaccinated against meningitis A in Burkina Faso in December 2010

Technology has allowed us to be in direct, visual contact daily with the problems that affect the rest of the world. That has brought citizens, particularly in the United States, a much better recognition of the world at large. When I first started talking to people about malaria, they were horrified [to hear] that a million children died from it every year. They thought malaria had been eradicated because it's not here [in the USA]. Some thought there was a vaccine available or that it was a rare tropical disease. People outside the infectious disease community had no idea that, not only did it have such an impact, but that it is treatable and preventable. When you can link a solution to a problem, people feel empowered to get involved.

*Q: Is this empowerment part of the philosophy of the Gates Foundation?*

A: It goes back to the roots of how the Foundation came into being: Bill and Melinda Gates read about the rotavirus vaccine that their children had access to. They realized that the world's poorest children, who had much higher mortality rates, did not have access to this vaccine. Much of the Foundation's work is a matter of timing, coming onto the stage at the right time. We didn't develop the original rotavirus or pneumococcal vaccines. Those tools already existed. And we already had data on the effectiveness of insecticide-treated bed nets and ACTs against malaria years before they were implemented. What was required was financing to support government policies and to make it feasible to implement at the country level.

*Q: Much of your work has been in vaccine development and implementation. What do you consider the major challenges in this area?*

“If we think back to where we were in 1995, we have witnessed a revolution in global health.”

A: Ten years ago, the world's immunization programmes were languishing. Routine immunization coverage was dropping, and the poorest countries weren't taking up the new vaccines, such as Hib [*Haemophilus influenzae* type b], pneumococcal and rotavirus vaccines, that the rest of the world was already using. We were seeing a bifurcation in vaccination coverage, with the lowest vaccine coverage in places where they would have the biggest impact. Today, country plans for introduction are being implemented as a result of increased financing and this has directly contributed to improvements in infant mortality. The task is not done, of course. On the side of routine immunization, measles has taken on the unfortunate role of the canary in the gold mine – letting us know, quite rapidly, when we were falling behind. Epidemics of measles are predictable, if the population coverage

with the two-dose regimen is not high enough.

*Q: What about vaccines for diseases that we don't see in high-income countries?*

A: Another challenge that we face is developing and delivering vaccines for diseases that are mainly in poor countries. For example: Japanese encephalitis, epidemic meningitis in the Sahel, even sustaining delivery of old vaccines like yellow fever. Because these diseases can present as epidemics, they are often a priority for endemic countries, although sustaining immunization in between epidemics can be challenging. The development of the meningitis A vaccine by the World Health Organization [WHO] – PATH partnership is a great example of product development that is responsive to country needs.

*Q: You consider the meningitis A project one of the highlights of your career so far. Why?*

A: The Gates Foundation started funding this project in 2001. Personally it was gratifying to go from being part of the team that helped put the proposal together (while I was at PATH), from negotiating the projected budget with the Foundation, to joining the group that went to Burkina Faso for the launch last December. This group included WHO's Director-General [Margaret Chan], Tachi Yamada [president, Global Health Program at the Gates Foundation] and the President of Burkina Faso. Many, many children were there that day too. The goal was to immunize the target population, aged between one and 29 years, in 10 days and it was accomplished in eight days! I was very impressed with how the countries themselves got together to decide which ones would be the first three to introduce it, because the vaccine supplies were limited in year one. Now we're beginning to get the data back on how little meningitis A there has been since the launch. There have been just two cases in Burkina Faso so far. Of course, we will have to wait and see because we don't want to prematurely claim success. These countries are doing very good surveillance now, picking up other kinds of meningitis, but they're not seeing meningitis A and these are places that have annual epidemics. The world faces some real challenges in health but fortunately we also have some real solutions. I think we have reason to be optimistic. ■