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PATH searches for new vaccine for pneumonia

By Sandi Doughton

Seattle Times staff reporter

Dr. John Boslego is in a hurry.

More than a million children are dying every year from pneumonia, mostly in the poorest corners of the globe.

The chief of vaccine development for the Seattle-based health organization PATH wants to bring that number down as quickly as possible. But he knows it won't be easy.

"The problem is so big," he said. "The solutions have to be multifold."

In his quest for speed, Boslego is pioneering a new approach to vaccine development.

Instead of waiting for drug companies and biotech firms to design and test pneumonia vaccines for kids, PATH hopes to leverage a new, \$75 million grant from the Bill & Melinda Gates Foundation to accelerate the process from the lab to the manufacturing plant.

The goal is a vaccine that can target most of the disease strains prevalent in Africa, Asia and other parts of the developing world. Most of all, it would be cheap — between \$1 and \$5 a dose, a fraction of the cost of existing pneumonia vaccines.

With the average cost of bringing a new drug to market estimated at \$200 million to \$500 million, Boslego knows the five-year Gates grant alone won't yield a vaccine. But he hopes it will shave years off the process.

"Historically, it takes 10 to 15 years for these vaccines to get to people in the developing world," he said. "That's too long."

PATH's work is part of a bigger effort, largely paid for by Microsoft founder Bill Gates and his wife,

to tackle a disease which often is ignored, but kills as many people globally as malaria.

Widespread, deadly

One of the biggest challenges has been getting leaders, including those in the hardest-hit nations, to understand how widespread and deadly the disease is, said Dr. Orin Levine, a pneumonia expert at Johns Hopkins University. It's commonplace for children to die of a fever or cough, but there's rarely an actual pneumonia diagnosis, he said.

Levine heads another Gates-funded program to speed existing and second-generation vaccines to the developing world.

Older adults in the U.S. and Europe are regularly vaccinated against pneumonia. A vaccine for children was introduced about five years ago and has been a blockbuster product for pharmaceutical giant Wyeth. But it's not available in the developing world, and its \$50 price tag puts it out of reach for many families.

Levine's group has worked closely with Wyeth to expand production of the drug. But \$500 million to \$2 billion still is needed to buy the vaccine and distribute it to poor countries, he said. The drug also is tailored to pneumonia strains common in Europe and the United States, so it's not clear how effective it would be in Africa or Asia.

ID candidate drugs

The PATH program will focus on vaccines that will be effective against most of the 90 known strains of pneumococcal bacteria.

Instead of starting from scratch, PATH will survey pneumonia research already under way and identify the most promising vaccine candidates, Boslego said.

Then, those candidate drugs will be compared head to head in laboratory tests.

The best of the batch will win shares of the Gates money to speed their development — as long as the developers agree to make the vaccine available at low cost in the developing world.

Long before the lab results are in, PATH will start laying the groundwork for clinical trials on the vaccines. That will include basic surveys on the prevalence of pneumonia, identifying the best places for the trials, and training workers to participate.

PATH also will begin scouting early for possible manufacturing sites.

"We're going to do all these things simultaneously," said Boslego, who left a top-level job at drug maker Merck to join the nonprofit PATH.

No one has ever designed a pneumonia vaccine able to target virtually any strain, said Cynthia Whitney, chief of the Respiratory Disease Branch at the U.S. Centers for Disease Control and Prevention.

"Will it work?" she asked. "That's the million-dollar question."

The approach makes sense, she said, as does the Gates Foundation's ambitious push to speed life-saving technology to the people who need it most.

"I think we're probably ahead of where we would have been without these efforts."

Levine's struggle for money to distribute existing pneumonia vaccine in the Third World illustrates some of the economic and social hurdles that remain.

But he's optimistic that this year may mark a turning point.

The G7 group of wealthy countries, including the United States, is considering a \$3 billion commitment to vaccines for poor countries. Under an innovative agreement, the G7 would guarantee to buy large amounts of the drugs, eliminating the financial risk that now scares many pharmaceutical companies away from the developing world.

Owen Barder, at a Washington, D.C., think tank called the Center for Global Development, helped dream up the deal.

"For the drug companies it's a no-brainer, and it could save millions of lives," he said.

Barder's funding? From the Gates Foundation, of course.

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