EurekAlert! The Global Source for Science News
AAAS
PUBLIC RELEASE: 26-SEP-2017

# Serum Institute's vaccine demonstrates significant efficacy against severe rotavirus

*Indian government orders the vaccine for use in Universal Immunization Programme*

PATH

Pune, India (26 September 2017) - Results from a Phase 3 efficacy study in India of the Serum Institute of India Pvt. Ltd.'s rotavirus vaccine BRV-PV (known as ROTASIIL®) were published in the journal *Vaccine*. The study showed the vaccine to be safe, well tolerated, and to provide significant efficacy against severe rotavirus gastroenteritis. In 2013, an estimated 47,100 rotavirus deaths occurred in India, 22 percent of all rotavirus deaths that occurred globally.

ROTASIIL reduced severe rotavirus diarrhea by more than a third - 39.5 percent over two years. Significantly, the vaccine efficacy was nearly 55 percent against the most severe and potentially life-threatening cases of rotavirus diarrhea, which represent the highest risk of dehydration, hospitalizations, and deaths. The results demonstrated by ROTASIIL in India appear generally comparable to the performance of RotaTeq® and Rotarix® in Bangladesh and in some African countries.

Dr. Rajeev Dhere, executive director of the Serum Institute, under whose leadership this vaccine has been developed, commented, "We are delighted with these results, which indicate that ROTASIIL could save the lives of tens of thousands of children each year in India and, potentially, around the world."

The international nonprofit PATH partnered with Serum Institute on evaluating this vaccine in the Phase 3 efficacy study. Six study sites across India enrolled 7,500 infants in the trial. ROTASIIL is an oral vaccine administered to infants in a three-dose course at 6, 10, and 14 weeks of age, at the same time as routine vaccinations under India's Universal Immunization Programme.

The office of the Drugs Controller General of India, through its subject expert committee, reviewed the Phase 3 safety and efficacy results and subsequently inspected Serum Institute's manufacturing facilities leading to licensure of ROTASIIL in January 2017.

The Government of India has placed an order for 3.8 million doses of ROTASIIL to use in the Universal Immunization Programme, which serves 26 million children. Serum Institute has manufactured the vaccine doses and is awaiting instructions from the Ministry of Health and Family Welfare for their distribution. ROTASIIL will also be available for sale in India's private market later this year.

Serum Institute is pursuing World Health Organization (WHO) prequalification to make this vaccine available for global procurement. PATH and Serum Institute partnered to conduct a separate Phase 3 study in India to gather additional data required for WHO prequalification; results from that study will be submitted for publication this year.

"This is great news for India," noted Dr. David Kaslow, PATH's vice president for Essential Medicines and global head of the Center for Vaccine Innovation and Access. "The results and successful licensure of this rotavirus vaccine is an exciting and encouraging milestone toward the public health goal of improving the supply of affordable rotavirus vaccines, both in India and worldwide."

Médecins Sans Frontières and Epicentre are also evaluating the efficacy and safety of ROTASIIL in a separate Phase 3 study in Niger. That study is still ongoing, but results from the primary analysis (one year of data) also

showed the vaccine to be highly efficacious for the prevention of severe rotavirus diarrhea and to have an excellent safety profile. The efficacy of the vaccine against severe and very severe rotavirus diarrhea in the Niger study was 66.7 percent and 78.8 percent, respectively. These results were published in the *New England Journal of Medicine* in March 2017.

The ROTASIIL used in the Niger study was stored at less than 25°C and transported for vaccination at ambient temperature, thus bypassing the typically challenging and costly cold-chain requirements that apply to most other vaccines. The ROTASIIL used in the India study was from the same lots of vaccine used in the Niger study.

###

Additional resources for media:

* Fact sheet on rotavirus disease burden in India.

* Fact sheet on efficacy and impact of rotavirus vaccines.

* Additional quotes and media statements from experts.

These materials are available online: https://www.defeatdd.org/rotasiil.

**Media contacts:**

For Serum Institute:

Dr. Prasad Kulkarni, +91-9890679415, drpsk@seruminstitute.com

For PATH:

Sushmita Malaviya, PATH India, +91-9717243131, smalaviya@path.org

Allison Clifford, PATH Washington DC, +1-202-669-7238, aclifford@path.org

**About the vaccine/study:**

The bovine-human reassortant rotavirus vaccine was developed by the US National Institutes of Health and licensed to several emerging-country manufacturers and one US company for further development. Serum Institute was one of the licensees and developed a pentavalent (five-strain) vaccine product (BRV-PV). The BRV-PV (ROTASIIL) contains bovine-human reassortant rotaviruses against the most common rotavirus serotypes (G1, G2, G3, G4, and G9).

The Phase 3 efficacy trial enrolled 7,500 infants across six sites in India: Mahatma Gandhi Institute of Medical Sciences in Sewagram, Wardha (Central India); Government Medical College in Jammu (North West India); KEM Hospital Research Centre in Pune (West India); National Institute of Cholera and Enteric Diseases in Kolkata (East India); Kasturba Medical College in Manipal (South India); and Centre for Health Research and Development at the Society for Applied Studies in New Delhi (North India). Other organizations involved in the study included Christian Medical College, Vellore, DiagnoSearch Life Sciences, and Enterovirus Research Centre, Mumbai. Children were followed until two years of age by the study team to assess vaccine efficacy and safety.

**About the study partners:**

Serum Institute of India Pvt, Ltd. (SIIPL) is the world's largest producer of measles and DTP (diphtheria, tetanus, and pertussis) vaccines. SIIPL was founded in 1966 with the aim of manufacturing lifesaving immunobiologicals, which were in shortage in India and imported at high prices. SIIL was able to manufacture

several lifesaving biologicals at more affordable prices and in larger quantities, with the result that the country became self-sufficient in supplying tetanus anti-toxin and anti-snake venom serum, followed by DTP vaccines and later MMR (measles, mumps, and rubella) vaccines. SIIPL's products have helped bring down the prices of newer vaccines, such as hepatitis B vaccine, rabies vaccine, and the DTP combination vaccine, so that not only Indians, but also underprivileged children in more than 140 countries, are protected from birth onwards. For more information, visit: http://www.seruminstitute.com.

PATH is the leader in global health innovation. An international nonprofit organization, PATH saves lives and improves health, especially among women and children. PATH accelerates innovation across five platforms--vaccines, drugs, diagnostics, devices, and system and service innovations--that harness its entrepreneurial insight, scientific and public health expertise, and passion for health equity. By mobilizing partners around the world, PATH takes innovation to scale, working alongside countries primarily in Africa and Asia to tackle their greatest health needs. Together, PATH delivers measurable results that disrupt the cycle of poor health. For more information, visit: http://www.path.org.

**About the journal article:**

"A Randomized Phase III Clinical Trial to Assess the Efficacy of a Bovine-Human Reassortant Pentavalent Rotavirus Vaccine in Indian Infants" by Prasad S Kulkarni, Sajjad Desai, Tushar Tewari, Anand Kawade, Nidhi Goyal, Bishan Swarup Garg, Dinesh Kumar, Suman Kanungo, Veena Kamat, Gagandeep Kang, Sudhir Babji, Sanjay Juvekar, Byomkesh Manna, Shanta Dutta, Rama Angurana, Deepika Dewan, Abhijeet Dharmadhikari, Jagdish K. Zade, Rajeev M. Dhere, Alan Fix, Maureen Power, Vidyasagar Upreti, Varsha Parulekar, Iksung Cho, Temsunaro R. Chandola, Vikash K. Kedia, Abhishek Raut, Ashish Bavdekar, SII BRV-PV author group, Jorge Flores. DOI: http://dx.doi.org/10.1016/j.vaccine.2017.09.014. It appears in *Vaccine* (article in press) published by Elsevier. Copies of this paper are available to credentialed journalists upon request; please contact Elsevier's Newsroom at newsroom@elsevier.com or +31 20 485 2492.

**About Vaccine:**

*Vaccine* is the pre-eminent journal for those interested in vaccines and vaccination. It is the official journal of The Edward Jenner Society and The Japanese Society for Vaccinology and is published by Elsevier. For more information, visit: http://www.elsevier.com/locate/vaccine.

Outbreaknews Today

# India: Rotavirus vaccine reduced severe rotavirus diarrhea by 40 percent in Phase 3 study

*by* PRESS RELEASE
September 26, 2017

Results from a Phase 3 efficacy study in India of the Serum Institute of India Pvt. Ltd.'s rotavirus vaccine BRV-PV (known as ROTASIIL®) were published in the journal *Vaccine*. The study showed the vaccine to be safe, well tolerated, and to provide significant efficacy against severe rotavirus gastroenteritis. In 2013, an estimated 47,100 rotavirus deaths occurred in India, 22 percent of all rotavirus deaths that occurred globally.
The organism's characteristic wheel-like appearance under the electron microscope gives the rotavirus its name from the Latin word 'rota,' meaning 'wheel.'

ROTASIIL reduced severe rotavirus diarrhea by more than a third – 39.5 percent over two years. Significantly, the vaccine efficacy was nearly 55 percent against the most severe and potentially life-threatening cases of rotavirus diarrhea, which represent the highest risk of dehydration, hospitalizations, and deaths. The results demonstrated by ROTASIIL in India appear generally comparable to the performance of RotaTeq® and Rotarix® in Bangladesh and in some African countries.

Dr. Rajeev Dhere, executive director of the Serum Institute, under whose leadership this vaccine has been developed, commented, "We are delighted with these results, which indicate that ROTASIIL could save the lives of tens of thousands of children each year in India and, potentially, around the world."

The international nonprofit PATH partnered with Serum Institute on evaluating this vaccine in the Phase 3 efficacy study. Six study sites across India enrolled 7,500 infants in the trial. ROTASIIL is an oral vaccine administered to infants in a three-dose course at 6, 10, and 14 weeks of age, at the same time as routine vaccinations under India's Universal Immunization Programme.

The office of the Drugs Controller General of India, through its subject expert committee, reviewed the Phase 3 safety and efficacy results and subsequently inspected Serum Institute's manufacturing facilities leading to licensure of ROTASIIL in January 2017.

The Government of India has placed an order for 3.8 million doses of ROTASIIL to use in the Universal Immunization Programme, which serves 26 million children. Serum Institute has manufactured the vaccine doses and is awaiting instructions from the Ministry of Health and Family Welfare for their distribution. ROTASIIL will also be available for sale in India's private market later this year.

Serum Institute is pursuing World Health Organization (WHO) prequalification to make this vaccine available for global procurement. PATH and Serum Institute partnered to conduct a separate Phase 3 study in India to gather additional data required for WHO prequalification; results from that study will be submitted for publication this year.

"This is great news for India," noted Dr. David Kaslow, PATH's vice president for Essential Medicines and global head of the Center for Vaccine Innovation and Access. "The results and successful licensure of this rotavirus vaccine is an exciting and encouraging milestone toward the public health goal of improving the supply of affordable rotavirus vaccines, both in India and worldwide."

Médecins Sans Frontières and Epicentre are also evaluating the efficacy and safety of ROTASIIL in a separate Phase 3 study in Niger. That study is still ongoing, but results from the primary analysis (one year of data) also showed the vaccine to be highly efficacious for the prevention of severe rotavirus diarrhea and to have an excellent safety profile. The efficacy of the vaccine against severe and very severe rotavirus diarrhea in the Niger study was 66.7 percent and 78.8 percent, respectively. These results were published in the *New England Journal of Medicine* in March 2017.

The ROTASIIL used in the Niger study was stored at less than 25°C and transported for vaccination at ambient temperature, thus bypassing the typically challenging and costly cold-chain requirements that apply to most other vaccines. The ROTASIIL used in the India study was from the same lots of vaccine used in the Niger study.

## ET Health world

# Serum's rotavirus vaccine shows significant efficacy, gets govt order for 3.8 mn doses

***The study showed the vaccine to be safe, well tolerated, and to provide significant efficacy againstn severe rotavirus gastroenteritis.***ETHealthWorld | September 26, 2017, 16:40 IST


Representative imagePune: Results from a Phase 3 efficacy study in India of the Serum Institute of India Pvt. Ltd.'s rotavirus vaccine BRV-PV (known as ROTASIIL) were published in the journal Vaccine.

The study showed the vaccine to be safe, well tolerated, and to provide significant efficacy against severe rotavirus gastroenteritis.

ROTASIIL is an oral vaccine administered to infants in a three-dose course at 6, 10, and 14 weeks of age, at the same time as routine vaccinations under India's Universal Immunization Programme.

ROTASIIL reduced severe rotavirus diarrhea by more than a third – 39.5 percent over two years.

Significantly, the vaccine efficacy was nearly 55 percent against the most severe and potentially life threatening cases of rotavirus diarrhea, which represent the highest risk of dehydration, hospitalizations, and deaths. The results demonstrated by ROTASIIL in India appear generally comparable to the performance of RotaTeq and Rotarix in Bangladesh and in some African countries.

Dr. Rajeev Dhere, executive director of the Serum Institute, under whose leadership this vaccine has been developed, commented, "We are delighted with these results, which indicate that ROTASIIL could save the lives of tens of thousands of children each year in India and, potentially, around the world."

PATH partnered with Serum Institute on evaluating this vaccine in the Phase3 efficacy study. Six study sites across India enrolled 7,500 infants in the trial.

The office of the Drugs Controller General of India, through its subject expert committee, reviewed the Phase 3 safety and efficacy results and subsequently inspected Serum Institute's manufacturing facilities leading to licensure of ROTASIIL in January 2017.

The Government of India has placed an order for 3.8 million doses of ROTASIIL to use in the Universal Immunization Programme, which serves 26 million children.

ROTASIIL will also be available for sale in India's private market later this year. Serum Institute is pursuing World Health Organization (WHO) prequalification to make this vaccine available for global procurement.

"This is great news for India," noted Dr. David Kaslow, PATH's vice president for Essential Medicines and global head of the Center for Vaccine Innovation and Access. "The results and successful licensure of this rotavirus vaccine is an exciting and encouraging milestone toward the public health goal of improving the supply of affordable rotavirus vaccines, both in India and worldwide."

Médecins Sans Frontières and Epicentre are also evaluating the efficacy and safety of ROTASIIL in a separate Phase 3 study in Niger. That study is still ongoing, but results from the primary analysis (one year of data) also showed the vaccine to be highly efficacious for the prevention of severe rotavirus diarrhea and to have an excellent safety profile. The efficacy of the vaccine against severe and very severe rotavirus diarrhea in the Niger study was 66.7 percent and 78.8 percent, respectively. These results were published in the New England Journal of Medicine in March 2017.

# Rotavirus vaccine set to hit the market in October

DH News Service, New Delhi, Sep 27 2017, 2:16 IST

*The vaccine to protect babies against a deadly form of diarrhoea comes at a time when the Centre is expanding its immunisation basket with the inclusion of more shots. File Photo*

Indian medical researchers on Tuesday announced success with a second rotavirus vaccine, which is expected to hit the market next month.

The vaccine to protect babies against a deadly form of diarrhoea comes at a time when the Centre is expanding its immunisation basket with the inclusion of more shots.

Named Rotasil, the new vaccine has been made by a team comprising scientists from Serum Institute of India in collaboration with 10 other outfits, including NGOs PATH and Kolkata-based National Institute of Cholera and Enteric Diseases.

Rotasil reduced severe rotavirus diarrhoea by more than a third – 39.5% over two years. The efficacy was 55% against the most severe cases of rotavirus diarrhoea, which represent the highest risk of dehydration, hospitalisations and deaths.

The results of the phase-III trials involving 7,500 infants have been published in the journal Vaccine on Tuesday.

“We are delighted with these results, which indicate that Rotasil could save the lives of tens of thousands of children each year in India and potentially around the world,” said Rajeev Dhere, executive director of the Serum Institute, Pune.

At present, there are three rotavirus vaccines available in India. Only one of them, Rotavac, made by Hyderabad-based Bharat Biotech, has been tested for efficacy.

On a head-to-head comparison, Rotavac with 53.6% efficacy fared better than Rotasil that has 39.5% efficacy.

Asked whether 39.5% efficacy is good enough for the vaccine’s commercial marketing in India, a company official answered in affirmative.

“This result is in line with all other vaccines when tested in developing countries. All rotavirus vaccines show little lower efficacy in developing countries because of various reasons. But since the disease burden is very high, the impact of the same vaccine is tremendous,” Prasad Kulkarni, the lead investigator from Serum Institute, told DH.

Nearly 37% of the 5,78,000 diarrhoeal deaths worldwide in children less than 5 years of age were caused by rotavirus in 2013, leading to 2,15,000 deaths out of which 22% were Indian kids.

**The Indian Express**

# New vaccine by Pune-based institute safe against severe rotavirus gastroenteritis: Study

## To be launched in Nov; Centre orders 3.8 million doses for use in Universal Immunisation Programme

Written by **Anuradha Mascarenhas** | Pune | Published:September 27, 2017 8:51 am

A new vaccine against rotavirus gastroenteritis, developed by the Pune-based Serum Institute of India, promises to be a cost-effective and heat-stable option in the global strategy for diarrhoea prevention, according to the results of a study published in the international journal Vaccine.

Rotavirus is the most common cause of diarrhoea and one of the leading causes of mortality among children who are under five years of age. Rotavirus accounts for approximately 40 per cent of all diarrhoea cases requiring treatment. A Rotavirus disease cannot be treated with antibiotics or other drugs.

The new vaccine, ROTASIL, is supposed to be orally administered to infants in a three-dose course at 6, 10, and 14 weeks of age, at the same time when the existing vaccinations under India's Universal Immunisation Programme are administered.

The international non-profit PATH partnered with Serum Institute to evaluate this vaccine in the Phase 3 efficacy study. Initiated in May 2014, the study was conducted at clinical sites across six places in India — Pune, Kolkata, Sewagram, Delhi, Manipal, and Jammu. A total of 7,500 infants were followed from the time of vaccination until 2 years of age, to check the efficacy and safety outcomes.

The results showed that ROTASIL reduced severe rotavirus diarrhoea by more than a third, by 39.5 per cent over two years. The vaccine efficacy was nearly 55 per cent against the most severe and potentially life-threatening cases of rotavirus diarrhoea, which represent the highest risk of dehydration, hospitalisations, and deaths.

"The Centre has placed an order for 3.8 million doses of the vaccine to use in the Universal Immunisation Programme, which serves 26 million children. The Serum Institute has manufactured the vaccine doses and will launch the vaccine in November," Dr Rajeev Dhere, executive director of the Serum Institute of India, told The Indian Express.

It is estimated that 11.37 million episodes of rotavirus gastroenteritis occur every year in India alone, and they require 3.27 million outpatient visits and 872,000 in-patient admissions. In 2013, an estimated 47,100 rotavirus deaths occurred in India — 22 per cent of all rotavirus deaths that occurred globally. Currently, two rotavirus vaccines — Rotarix and RotaTeq — are licensed

internationally and are prequalified by the World Health Organisation. A third vaccine, Rotavac, was recently licensed in India.

Despite the presence of these vaccines, there remains an overwhelming need for cost-effective and safe rotavirus vaccines for the worst-affected countries, said Dr Prasad Kulkarni, medical director at Serum Institute of India, who led the study.

Meanwhile, Médecins Sans Frontieres and Epicentre are also evaluating the efficacy and safety of ROTASIL in a separate Phase 3 study in Niger. That study is still ongoing, but results from the primary analysis also showed the vaccine to be highly efficient for the prevention of severe rotavirus diarrhoea, and with an excellent safety profile. The efficacy of the vaccine against severe and very severe rotavirus diarrhoea in the Niger study was 66.7 per cent and 78.8 per cent, respectively. These results were published in the New England Journal of Medicine in March 2017.

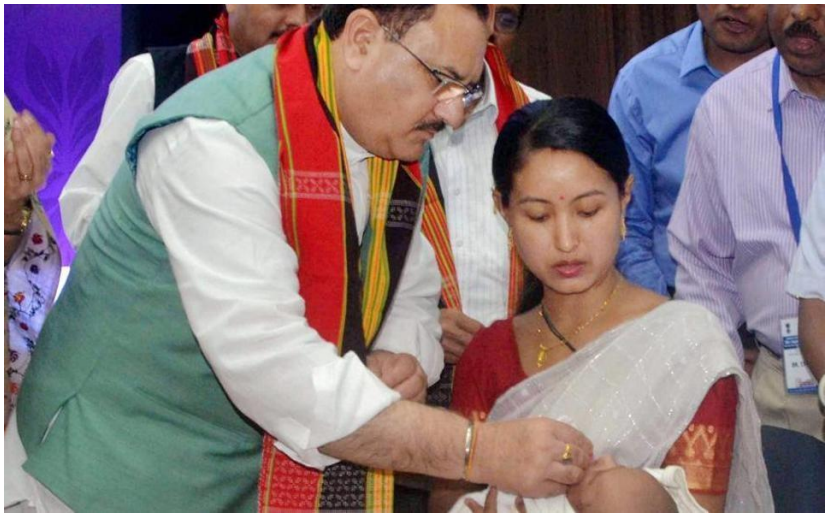
Hindustan Times

# Serum Institute's rotavirus vaccine shows significant efficacy against severe diarrhoea

One lakh children die of severe diarrhoea, owing to rotavirus, each year in India.

HEALTH Updated: Sep 26, 2017 20:18 IST

Rhythma Kaul



Union health minister JP Nadda administering rotavirus vaccine in Agartala, Tripura, earlier this year. (HT File photo)

Results from a Phase-III efficacy study in India that were published in the journal Vaccine on Tuesday have found a more effective vaccine against rotavirus that causes severe diarrhoea in children.

Of the total diarrhoea deaths of children due to rotavirus world over, more than 20% die in India.

The Serum Institute of India developed and manufactured the rotavirus vaccine BRV-PV (known as Rotasiil).

The study showed the vaccine to be safe, well tolerated, and to provide significant efficacy against severe rotavirus gastroenteritis. In 2013, an estimated 47,100 rotavirus deaths occurred in India.

Rotasiil reduced severe rotavirus diarrhea by more than a third— 39.5% over two years. Significantly, the vaccine efficacy was nearly 55% against the most severe and potentially life-threatening cases of rotavirus diarrhea, which represent the highest risk of dehydration, hospitalizations, and deaths.

The international nonprofit PATH partnered with Serum Institute on evaluating this vaccine in the Phase 3 efficacy study. Six study sites across India enrolled 7,500 infants in the trial. ROTASIIL is an oral vaccine administered to infants in a three-dose course at 6, 10, and 14 weeks of age, at the same time as routine vaccinations under India's Universal Immunization Programme.

The office of the Drugs Controller General of India, through its subject expert committee, reviewed the Phase 3 safety and efficacy results and subsequently inspected Serum Institute's manufacturing facilities leading to licensure of ROTASIIL in January 2017.

The Government of India has placed an order for 3.8 million doses of ROTASIIL to use in the Universal Immunization Programme, which serves 26 million children.

Serum Institute has manufactured the vaccine doses and is awaiting instructions from the health ministry for its distribution. ROTASIIL will also be available for sale in India's private market later this year.

Fierce Pharma

# Serum Institute touts phase 3 rotavirus data as it preps first deliveries

by *Eric Sagonowsky* |
Sep 26, 2017 7:27pm

Affordable vaccine maker Serum Institute of India has new results to trumpet from a phase 3 trial of its heat-stable rotavirus vaccine as it preps to deliver millions of doses to a national vaccine program.

The company's vaccine, Rotasiil, **reduced** severe rotavirus diarrhea in infants by 39.5% over two years, according to phase 3 results published in the journal Vaccine. The vaccine was about 55% effective against the most severe cases of rotavirus, which can be fatal. Investigators tested the shot in 7,500 infants at six sites in India.

International nonprofit PATH partnered on the study and another trial that's designed to secure WHO prequalification for the shot. Securing that nod would make the inexpensive rotavirus shot eligible for purchase and distribution on a global basis, improving costs and access. Already, though, India's government has ordered 3.8 million doses of Serum's oral vaccine that's administered in three doses at 6, 10 and 14 weeks of age.

Serum Institute says it has manufactured those doses and is awaiting directions for delivery. The Indian vaccine giant is prepping for a launch on the private market later this year. India approved the shot in January after reviewing previous phase 3 data and inspecting the company's manufacturing operation.

PATH's Center for Vaccine Access and Innovation director, David Kaslow, said in a statement the new trial results and vaccine licensure are an "encouraging milestone toward the public health goal of improving the supply of affordable rotavirus vaccines, both in India and worldwide."

In a separate phase 3 study in Niger, investigators reported that the vaccine was 67% effective against severe rotavirus gastroenteritis in infants. The results were slightly better than the 61% posted by GlaxoSmithKline's Rotarix and much better than the 39% demonstrated by Merck's RotaTeq, both in previous trials. Those vaccines need to be refrigerated.

India suffered more than 47,000 deaths due to rotavirus in 2013, according to PATH's release, or more than a fifth of the rotavirus deaths around the world that year.

Based in Seattle, nonprofit PATH recently secured $120 million in grant funding from the Gates Foundation as it works to develop new vaccines for and improve access in low-resource areas around the world.