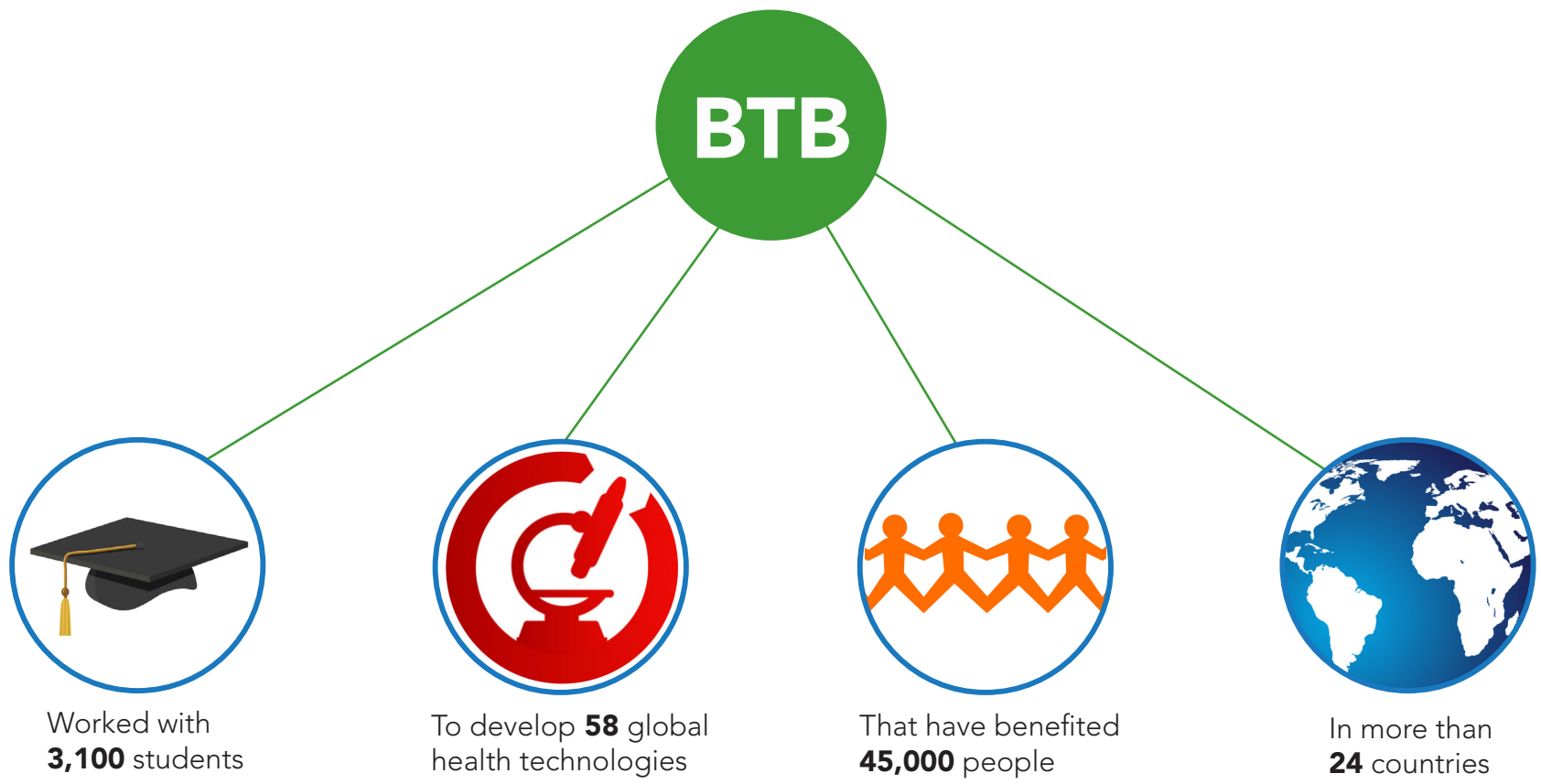


2013 Winners of the \$100,000 Lemelson-MIT Award for Global Innovation

Rebecca Richards-Kortum & Maria Oden

To date, Richards-Kortum and Oden, through the Beyond Traditional Borders (BTB) initiative, have:



Professors Rebecca Richards-Kortum and Maria Oden created the Beyond Traditional Borders engineering design initiative at Rice University, an educational program that trains the next generation of inventors to create and deliver health solutions to the developing world.

STUDENT INVENTIONS THAT HAVE EMERGED FROM BTB UNDER THE GUIDANCE OF RICHARDS-KORTUM AND ODEN

PROBLEM

SOLUTION

IMPACT

Low-cost bubble Continuous Positive Airway Pressure



Many premature babies are born with immature lungs and struggle to breathe on their own, yet the high cost of respiratory therapies found in the developing world render them unavailable to those in developing countries.

A continuous positive airway pressure system that uses aquarium pumps to flow constant air into the lungs, making it easier for the baby to breathe and helping them build their lung capacity to ultimately breathe comfortably on their own.

Undergoing clinical trials in Malawi; could reduce infant mortality by as much as **30 percent** if scaled throughout Africa.

DoseRight Oral Syringe Clip

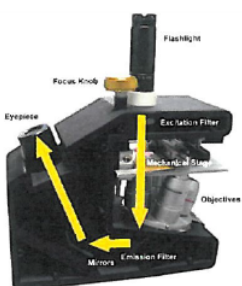


Inaccurate dosing of liquid medication is common in the delivery of AIDS-fighting drugs that are used to prevent the transmission of HIV from infected mothers to their babies in the developing world.

A plastic device inserted into the barrel of a syringe that governs how much fluid can be drawn up into the syringe; different dosage amounts are represented by different color clips, making it simple for anyone to dose correctly, regardless of literacy level.

DoseRight Clips have been distributed to mothers in Swaziland's Prevention of Mother to Child Transmission of HIV program; more than **213,000 clips** have been distributed to-date.

Global Focus Microscope



High-cost, research-grade fluorescence microscopes used to quickly diagnose diseases such as tuberculosis are not widely available in developing countries where those conditions are prominent.

A portable field microscope using a battery-operated LED-based flashlight as the light source achieves the same magnification in fluorescence mode for one-tenth of the cost as those which are research-grade.

Showed findings similar to research-grade microscopes in detecting tuberculosis in more than **98%** of samples; approximately **20 prototypes** of the device are in field tests worldwide.