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Vaccine delivery: Unique thermoelectric containers to replace ice packs

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Though the vaccine industry might have grown bigger with time, the product transportation under controlled temperature to the remote areas, still remains a big headache for the manufacturers and public heath workers alike. However, now Hyderabad-based Sathguru Management Consultants' has come up with a solution in form of a portable and battery operated thermoelectric container developed using cutting-edge technologies in collaboration with Dr Rama Venkatasubramanian, director of North Carolina-based RTI International's Center for Solid State Energetics. The thermoelectric container is envisioned to replace the Styrofoam and plastic boxes with ice packs that are currently used to transport vaccines to remote vaccination camps in emerging economies in Asia and Africa.

Sathguru's solution to the logistical challenge in last mile of vaccine delivery developed jointly with RTI International has been recognized by Grand Challenges Canada with a grant of CAD 100,000 (Canadian dollars).

The program lead from Sathguru, Ms Pushpa Vijayaraghavan believes that this solution bridges a critical gap and infrastructure challenge in vaccine delivery. She notes that while commendable milestones have been achieved in the development of vaccines, their delivery system is still stuck in a rut of age old practices. "Unfortunately, for moving vaccines to the last mile of delivery in remote camps, we still use the Styrofoam boxes and passive cooling technology used 50 years ago. While these ice packed boxes are a cost effective solution, they offer no method to regulate the temperatures in the box and vaccine loss due to temperatures ranging beyond the optimum is a widespread problem. Moreover, the short life of ice packs used significantly limits the length and efficacy of vaccination camps," she says.

Ms Vijayaraghavan and Dr Venkatasubramanian believe that their solution will empower health workers with a cost-effective yet new-age thermoelectric solution that can provide active cooling in the WHO mandated temperature range for a period of 24 to 48 hours.

While RTI will develop field ready prototypes of the solution, Sathguru will lead the effort in field validation and

commercialization of the innovative product. Partners for field validation and commercial production are currently being finalized and will play a critical part in the development of this impactful public health product that could change the landscape of vaccine delivery in resource constrained settings.

Sathguru has been recognized among 59 peer-reviewed grantees from low and middle income countries in Round 4 of the Stars in Global Health program for creative, out of the box global health solutions. Grand Challenges Canada is funded by the Government of Canada and is dedicated to supporting bold ideas with big impact in global health. RTI is one of the world's leading research institutes.