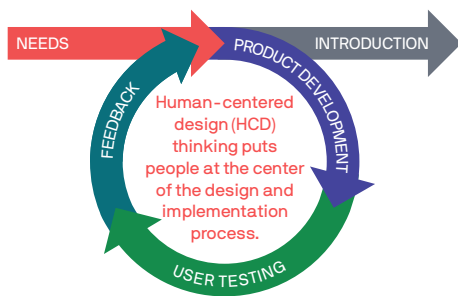


# RELI Delivery System: A reusable, low-power, infusion pump for lifesaving drug therapies

Stakeholder feedback leads to  
a new hybrid design able to treat  
people of all ages



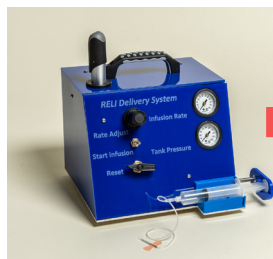
Human-centered design iteration evolved the RELI controlled drug and fluid delivery system for maternal and neonatal emergencies and treatment into a product that can address a broader range of clinical use applications and deliver even safer, more accurate infusions at an affordable cost.



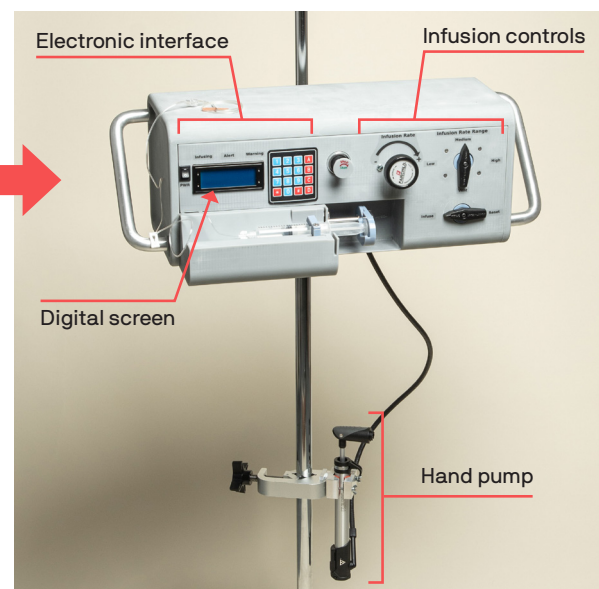
In response to user feedback from key stakeholders in Rwanda and Uganda and a holistic D<sub>3</sub>AWN portfolio stage gate design review, RELI team engineers pivoted the design of the non-electric pneumatic infusion system to a hybrid pneumatic-electric model to address the desire for alarms and other safety features that were not possible with the non-electric RELI.

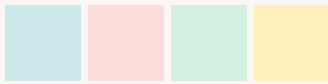
The hybrid design allows for addition of:

- An electronic interface that will be simpler to use than the prior mechanical interface.
- Alarms and real-time flow rate measurement feedback to the user via a digital screen
- Increased battery life compared to an all-electric pump.



The lower-cost new design, at right, with new easy-to-use safety features





## RELI DELIVERY SYSTEM PIPELINE STATUS



### More treatment options for more people

The new design also increases the maximum flow rate by about 6x. The wider flow rate range expands the potential use scenarios for a variety of drug treatments. These include iron infusions for severe maternal anemia; a larger selection of antibiotics for treating infections in infants, children, and adults; ketamine for anesthesia; and chemotherapy. Addressing the needs of a larger portion of the population improves the value proposition of the device and creates stronger incentives for an industry partner to manufacture and commercialize the device, ultimately leading to greater health impact.

### DRC costing work demonstrates affordability

Results showed an annual economic cost range per facility of \$125 to \$288. The costing study assumed that RELI was used to treat obstetric emergencies in health facilities with unreliable electricity and included estimated financial, maintenance, and training costs based on a 10-year economic life.



This project was funded with UK aid from the UK government.

### Input from users in Zambia suggest modifications to device design



The user assessment was designed to gather information to support improvements to the usability and acceptability of the RELI device, including form factor changes and optimization of training materials. Eleven nurses with knowledge of or who use infusion pumps in their current practices participated in the assessment. User feedback indicated several areas in which the design can be improved including making screen and infusion volume easier to read, decreasing size and weight of device, and creating user interface that is more intuitive.

All images: PATH, unless otherwise indicated

