

Spring Infusor Pump for Antibiotic Treatment of Osteomyelitis

Health need

Osteomyelitis (inflammation of the bone) is a common and serious problem in developing countries that largely affects children and young adults.¹ Treatment of acute osteomyelitis (early infection) consists of long-term administration of antibiotics and can cure the infection.² However, in low-resource settings treatment for acute osteomyelitis is often not accessed and can progress to chronic osteomyelitis. Treatment for chronic osteomyelitis involves complex surgery and can result in morbidity, such as loss of a limb.³ Enabling delivery of antibiotics in the home could increase access to early treatment, lessen the burden on the patient's family as well as the health system, and result in improved health outcomes and patient quality of life.

Technology solution

PATH is assessing the value of using a simple, affordable spring infusor pump that would allow long-term outpatient administration of antibiotics for the treatment of osteomyelitis. Unlike the traditional intravenous (IV) bag and pole set up, patients using this device do not need to be immobile and can continue with daily activities. PATH has identified the Go Medical Industries' (Subiaco, Australia) Springfusor[®], an infusor pump designed to be well-suited for use in low-resource settings, as a potential solution. This device is small, portable, and easy-to-use. It enables a patient to receive continuous or intermittent parenteral IV therapy in their home rather than require long-term hospitalization. The device does not require batteries or electricity and is powered by a spring. The product has United States Food and Drug Administration approval and European CE Mark and is currently used in developed countries for pain control and muscle relaxation drugs.

Current status and results

PATH is working to understand the context of use in Rwanda and the potential value of the technology, including gathering direct stakeholder input. In addition, PATH is also determining how a product could be made sustainably available for purchase by the public sector. PATH's efforts are complemented by a planned field trial using the Springfusor[®] for early treatment of osteomyelitis that will be conducted by the People's Survival Alliance later this year. PATH is collaborating with the People's Survival Alliance to coordinate activities and to jointly develop an evidence base for use of the technology, which includes clinical, technical, and market information.

1. Acute septic arthritis and osteomyelitis in children—an African perspective page. The Ptolemy Project website. Available at: <http://www.ptolemy.ca/members/archives/2010/Osteomyelitis/index.html>. Accessed March 7, 2012.

2. Solagberu BA. New classification of osteomyelitis for developing countries. *East Africa Medical Journal*. 2003;80(7):373–378.

3. Stanley CM, Rutherford GW, Morshed S, et al. Estimating the healthcare burden of osteomyelitis in Uganda. *Transactions of the Royal Society of Tropical Medicine and Hygiene*. 2010;104(2):139–142.



PATH/Mike Eisenstein

Portable IV carrying case designed in Rwanda and Springfusor[®] pumps.

“...osteomyelitis disproportionately affects the young, and is a burden on both clinical and surgical services. To decrease this burden in populations with limited resources, improved diagnosis and more timely treatment of acute osteomyelitis is needed.”

Stanley CM, Rutherford GW, Morshed S, et al. Estimating the healthcare burden of osteomyelitis in Uganda. *Transactions of the Royal Society of Tropical Medicine and Hygiene*. 2010;104(2):139–142.

Availability

For more information regarding this project, contact Paul LaBarre at plabarre@path.org.

Donor support

Support for this project was provided by the **United States Agency for International Development** and through funding from private foundations and individual donors to the **Health Innovation Portfolio** at PATH.