

Neurosurgeons challenged to eliminate all infant deaths from hydrocephalus

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Every year, thousands of babies worldwide die from untreated hydrocephalus, a condition in which the head swells from a buildup of excess fluid. But no baby need die from this condition, once called "water on the brain." Neurosurgeons now have the skills and tools to deal with the condition very effectively.

In an editorial in December 2015 issue of the journal *World Neurosurgery*, Loyola University Medical center neurosurgeon Vikram Prabhu, MD, examines the issue of hydrocephalus in Uganda. Dr. Prabhu is a professor in the Department of Neurological Surgery of Loyola University Chicago Stritch School of Medicine.

Hydrocephalus is the excess accumulation of cerebrospinal fluid, which circulates throughout the brain and spinal column and can cause significant damage and even death. It mostly affects children, although adults also can get hydrocephalus. It is very treatable with surgery.

Conventional treatment involves running a shunt (a thin tube) from the brain to the abdomen and using a valve to regulate fluid draining from the brain. Excess cerebrospinal fluid is diverted to the abdominal cavity, where it is easily absorbed. But shunts are expensive and [complex systems](#) that require frequent checks and may be prone to failure. The system is difficult even in developed countries. In developing countries, which lack the infrastructure to deal with inevitable infections and malfunctions, it is practically impossible to safely monitor and care for these devices.

Neurosurgeon Benjamin Warf, MD, developed a one-time, minimally-invasive endoscopic procedure that is safe, effective and easy to implement. (The technical term for the Warf procedure is endoscopic third ventriculostomy with choroid plexus and cauterization.) Dr. Warf established a center in Uganda that has provided neurosurgical care to scores of children with hydrocephalus, saving many lives.

"This is one of the best paradigms of global neurosurgery, and there are lessons to be learned," Dr. Prabhu wrote. "The most important may be its lack of complexity; in other words, simplicity is the most powerful tool."

Healthcare in the developing world often is dictated by cost. The Warf procedure is an example of how sparse resources "have spurred innovative physicians to pioneer efforts that provide health care in a parsimonious manner ..." Dr. Prabhu wrote. "We have much to learn from them, and their innovations may fuel cost-effective strategies back home."

Major medical facilities are required to successfully implement complex systems that are prone to break down or not be properly implemented or updated. Simple solutions such as the Warf procedure can benefit areas of the world that lack such facilities, Dr. Prabhu wrote.

Dr. Prabhu challenged neurosurgeons to carry on the intrepid work of Dr. Warf, who won a MacArthur Foundation "genius grant" and now is at Harvard Medical School.

"We should set a realistic goal with a finite timeline and pour our resources into it," Dr. Prabhu wrote. Unlike chronic illnesses that can be managed with medications but not eliminated or cured, hydrocephalus can be controlled very effectively by a surgical procedure that all neurosurgeons are familiar with and adept at.

Dr. Prabhu noted that the Lancet Commission on Global Surgery estimated that 5,000 surgeries for every 100,000 people would be sufficient to cover basic surgical needs - a worthwhile goal for surgeons worldwide.

Dr. Prabhu proposed that neurosurgeons set a similar but more precise goal for themselves: "No child should die of untreated hydrocephalus anywhere on this planet by 2030."

Provided by Loyola University Health System

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