

Version 2.5.2.0



Abstract

[Back to Hit List](#)

Grant Number: 1R43NS049680-01A1

Project Title: A Flow Monitor for Pediatric Hydrocephalic Shunts

PI Information: Name	Email	Title
DROST, CORNELIS J.	cor.drost@transonic.com	

Abstract: DESCRIPTION (provided by applicant): Hydrocephalic shunt dysfunction diagnosis is one of the most complicated and time consuming aspects of treating hydrocephalic infants and young children, since preverbal children cannot describe such critical symptoms as persistent headaches. One must instead rely on observable symptoms that often resemble those of common childhood illnesses. As a result, suspected shunt dysfunction often requires emergency room admission and invasive diagnostic tests, yet it is estimated that the shunt is actually working properly two out of three visits. One could greatly improve outcomes and reduce patient/parental stress if doctors could non-invasively measure shunt tubing CSF flow to assess shunt patency and shunt under/over drainage. Transonic Systems, Phoenix Biomedical, and the Children's Hospital of Wisconsin will address this need by developing a transcutaneously-powered/measured flow probe module integrated with standard shunt tubing exterior to the skull. This module will measure dynamic shunt volumetric flow by sending transit-time ultrasonic pulses through the tubing wall. This extra-luminal design ensures that transducers never contact CSF, and that the module can be integrated with existing shunt systems. Phase-I bench/in-vivo studies will validate the monitor's flow resolution and accuracy, leading to a Phase-II program to develop a fully implantable unit suitable for animal validation and initial clinical studies.

Public Health Relevance:

This Public Health Relevance is not available.

Thesaurus Terms:

fluid flow, hydrocephalus, monitoring device, pediatrics, technology /technique development
 biosensor, cerebrospinal fluid
 sheep

Institution: TRANSONIC SYSTEMS, INC.
 34 DUTCH MILL RD
 ITHACA, NY 14850

Fiscal Year: 2005

Department:

Project Start: 01-SEP-2005

Project End: 31-AUG-2007

ICD: NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE
IRG: ZRG1

