

WorldHeart's officers' perspectives about the Company and its opportunity...



"We believe there is a large growing market with limited competition. We also believe that our smaller and less invasive MiFlow™ VAD will be advantages in respect to heart failure patients."

Morgan Brown
EVP and CFO, WorldHeart;
Lifetree Clinical Research;
NPS Pharmaceuticals;
KPMG.



"The MiFlow™ VAD is designed so as not to cause acquired von Willebrand Factor (vWF) deficiency, a condition linked to serious bleeding disorders that has been associated with the use of current VADs."

John C. Woodward, MD
Chief Technology Officer,
WorldHeart; Ventracor;
Novacor/Baxter
Healthcare; Heart
Research Institute,
San Francisco

Heart Assist

Miniature technology, if approved, could mean greater safety and improved outcomes for heart failure patients

WorldHeart's **MiFlow™** VAD is designed to improve blood-handling and reduce the invasiveness of implantation in treating early- and late-stage heart failure patients.

by Ronald C. Trahan

Ventricular Assist Devices—VADs—are surgically implanted to support a patient's own heart by supplementing part of its cardiac output. WorldHeart Corporation is a pioneer in VAD therapy for treating heart failure, having developed the *Novacor* and *Levacor* VADs, designed to meet the unmet needs of patients with end-stage heart failure. There is significant opportunity to expand from the \$350 million per year Bridge-to-Transplant (BTT) market into a Destination Therapy (DT) market, which is expected to reach \$1 billion per year, according to Canaccord Genuity.

WorldHeart Corporation expects to become a VAD-market leader with two potentially less-invasive devices: (1) the minimally invasive, miniature **MiFlow™** VAD, designed for the significantly larger population of NYHA Class IIIb (less sick) heart failure patients, as well as Class IV patients; and (2) the **PediaFlow®** VAD, designed for pediatric patients.

"Currently marketed products have not sufficiently addressed the unacceptably high complication rates associated with VAD therapy, and therein lies the opportunity for our next-generation product, **MiFlow,**" says Chief Executive Officer **Alex Martin**.

"For example," says Martin, "data presented on current technologies at the American Heart Association's annual scientific meeting in November 2010 reported complication rates of 32%, 27% and 16% related to infection, bleeding, and disabling stroke, respectively. We believe these complication rates can be improved *substantially*."

"As patient survival improves with the use of VADs, surgeons will natu-



"Despite high complication rates associated with currently marketed VAD technologies, the VAD market continues to grow robustly. Our product focus, MiFlow, is designed to address these life-threatening deficiencies with a less invasive device."
Alex Martin, CEO

rally direct their attention to the differences in complication rates when choosing one VAD over another—especially important given the five or more years of expected use for a given VAD," adds Martin. "In addition to its tiny size, **MiFlow** has been designed with the goal of providing improved blood handling and reducing the invasiveness of implantation."