Abstract—Swan-Ganz catheter, a balloon flotation catheter, is used to measure indirect left ventricular pressure. The device is primarily used in Patients in the Intensive Care Unit (ICU). The catheter is a controversial and misused device.

I. INTRODUCTION

HEMODYNAMIC data is imperative for the care of critically ill patients in the Intensive Care Unit (ICU). To acquire hemodynamic data, a doctor can use a Swan-Ganz catheter. Swan-Ganz catheter (Pulmonary Arterial catheter) is a balloon flotation catheter that measures cardiac output by thermodilution. Doctor H.J.C. Swan and Doctor William Ganz first introduced the catheter in 1970.

II. METHODS

The Swan-Ganz Catheter takes just minutes to thread into a patient’s heart. Catheter is hooked up to a cardiac output computer. The cardiac output computer will give different heart waves graphs and cardiac output measurements. A physician can tell where the catheter is located by the heart waves. Since there are diverse signals for the areas of the heart, the physician will know if the catheter has slipped back into the right ventricle. The catheter will cause VT (Ventricular Tachycardia) if in the right ventricle.

III. RESULTS

A Swan-Ganz Catheter is an important and misused device. Before recent regulations on the procedures, the catheter was abused. Instead of using the inflation of the balloon only once every four hours, the balloons would be inflated every hour. This constant inflation would the balloon to rupture which would rupture the Pulmonary Artery that it is occluding. This will cause the patient to bleed to death.

Another current procedure that has been implemented is the duration of the use of the catheter. Before the regulation of the duration of the catheter, the catheter was kept indefinitely in the patient. The current duration is between 5 and 7 days.

IV. DISCUSSION

Since the Swan-Ganz catheter is a controversial device, there are benefits and risks that are debated within the medical community. Medical personal have limited the use of the catheter to only when it is truly need for monitoring. Advantages of the Swan-Ganz Catheter are the ability to detect heart failure or septic shock (blood flow issues) and to see how certain medications interact with the heart.

Disadvantages of the Swan-Ganz Catheter are Infection, Cardiac arrhythmias, injury to the vein, and bruising to the area where the catheter was threaded through.

Currently, a device has the possibility of taking the place of the Swan-Ganz Catheter for the detection of Heart Failure. That possible device is the Heart Failure Sensor. The Swan-Ganz has limitation of the balloon inflation (possibility of rupture) and direct connection to the cardiac output computer. While the HF Sensor can transmits wireless radiofrequency to cardiac output device and does not have wearable parts to the device. There is further research on the HF Sensor could possibly show that the HF Sensor can be an actual replacement for the Swan-Ganz Catheter.

REFERENCES