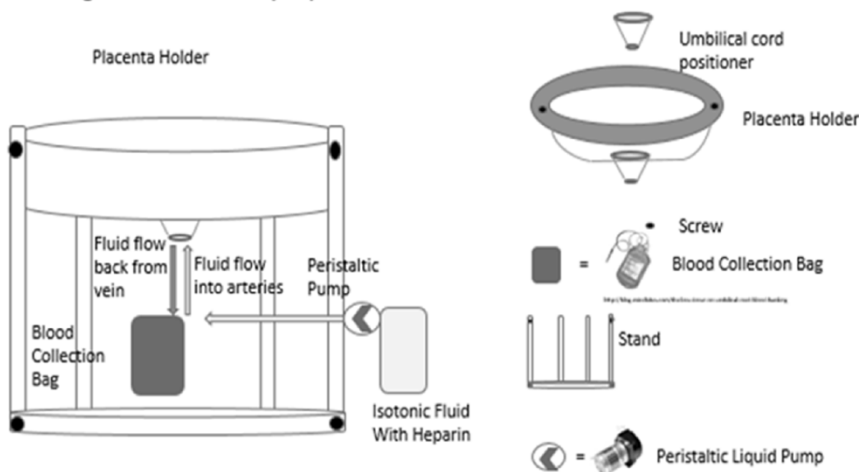


## Doubling Umbilical and Placenta Blood Collection

At birth, umbilical and placental blood can be collected and stored for later use. In the collected blood, hematopoietic stem cells are present that can be later used for a child, sibling, or family member to fight autoimmune diseases, cancer, or use in cancer treatment. Today, devices to collect the umbilical and placental blood only hold a small quantity of blood are often discarded in later years. To avoid wasting time and money of the patient and physician, a new umbilical and placental blood collecting device has been developed at Worcester Polytechnic Institute that doubles the volume of blood that is collected. Fast and easy to use, the device is the first device to collecting blood from the umbilical cord in addition to collect the residual blood from the placenta.

### Design 1- Fluid Pump System



As shown in the figure above, the new device utilizes features called catheters that are attached into the veins and arteries of the umbilical cord before the birth of the placenta. Directly after the birth, the placental is placed into the device where a fluid flush system pumps a biocompatible fluid through the arteries and capillaries in the placenta and umbilical cord. Lastly, the blood is collected through the catheter while placed in the vein. This device maximizes fluid collection, which is what companies are currently looking for.

### Benefits

- Increase the yield of placental blood collected
- Design is safe and hygienic for the mother, child, and clinician
- Fast and easy to use

### Features

- Uses peristaltic pumps to create blood flow through the umbilical and placental blood vessels
- Has a heating component to keep the placenta at body temperature during the blood collection procedure
- Device is compatible with industry standards for blood collection and equipment

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### Inventors

Anny Cunha  
Elizabeth Martino  
Conrad Ruiz  
Deanna Stueber

### Contact

Todd Keiller, Director  
Office of Intellectual Property  
and Innovation  
tkeiller@wpi.edu  
+1 508 831 4970



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