

CIRCLING BACK WITH *Leadership* **CIRCLE**

CIRCLING BACK



A Leadership Circle grant received in 2011 and 2014 has allowed the one-of-a-kind 3-D Cardiac Print Lab to expand, changing the lives of patients, families and surgeons.

Dr. Stephen Pophal was awarded these grants to purchase a 3D printer and establish the joint Arizona State University and Phoenix Children's Hospital Cardiac 3D Print Lab. The technology is being used for surgical planning, family consultation and medical education. The team is partnering with children's hospitals in Philadelphia and Washington, D.C., in an attempt to quantify the effect of using 3-D heart models. They believe using these heart models will speed recovery time, shorten time on the operating table, and reduce complications.

3D PRINT LAB HIGHLIGHTS

- Collaborations with more than 15 institutions spanning six countries
- Heart models are instrumental at the University of Arizona College of Medicine to help teach future doctors and surgeons
- Produces models for ears, hands, skeletal structures, blood vessels, medical devices, brains, tumors and more

3D PRINT LAB - JEMMA'S STORY



Jemma was born missing the right side of her heart. She was rushed to Phoenix Children's at just 1 day old. Prior to her surgery, Jemma's team received a 3D model of Jemma's heart prior to surgery in order to enhance presurgical planning. Jemma was one of the first patients at Phoenix Children's to benefit

from the novel technology. The surgeons and interventionalists held Jemma's "heart in" their hand before stepping foot into the operating room.

Jemma underwent multiple open heart surgeries during her first year and will require additional procedures in the future, but she is now a healthy toddler. Today at 18 months old, Jemma has braved her way through five surgeries to repair her heart. She's strong, happy and remarkably healthy.

CIRCLE OF CARE GROWS

Over the past 9 months, the Cardiac 3D Print Lab has been producing 3D prints of patient brain tumors following surgeries. These unique 3D prints are then given to patients for a cathartic experience (i.e. destroying the 3D print) or patient empowerment (e.g. showing the prints to their friends and community).

ZACHARY'S STORY



12-year-old Zachary Stachiw received a 3D print of his brain tumor, which was only discovered after he received a concussion during a hockey game. "I got a CT scan and that's when they found out I had a brain tumor," Zachary said. Barrow Neurological Institute of Phoenix's surgical team removed Zachary's

benign tumor. While the experience was terrifying, it was easier to manage, in part, because of a 3D print of his brain tumor. "I could see how big it was and how the shape was, so I could see what was inside my head at the time," Zachary said.

The Child Life department at Phoenix Children's Hospital is also using this technology to provide patients and families with therapeutic activities to promote positive coping during hospitalization. Child life specialists use 3D technology to offer opportunities for patients with limited life expectancies to provide families with keepsakes of their children following end of life, such as molds and prints of their hands. This will provide grieving families with a tangible remembrance of their child, especially in instances when it isn't possible to touch the child, such as in medical examiner's cases or when the patient is too fragile.



Leadership
CIRCLE
THE POWER OF MANY

**CUMULATIVE
11 YEARS**

2015

\$3.3 Million
Granted

1709
Members

59 Grants
Funded

\$470,000
Granted

5 Grants
Funded

252
Members

NUMEROUS LIVES IMPACTED

Your donations are providing extraordinary innovation and new programs at Phoenix Children's Hospital that are healing, finding cures and saving the lives of children. On any given day you can walk the hospital and see the impact of Leadership Circle funds in the lives of many...a child undergoing therapy in rehabilitation, the mom that holds a model of her child's heart in her hand, the researcher that's seeking a cure and the family that is waiting for one. You are a member of this inner circle.



LEADERSHIP CIRCLE

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