

Doctors use 3-D-printed hearts to treat birth defects in kids

Cardon Children's Medical Center specialists use innovative technology for better outcomes



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MESA, Ariz. (Feb. 10, 2019) – Similar to the way kids often use 3-D printers at home to make plastic toys, doctors at Cardon Children’s Medical Center can now print detailed and life-sized heart models to help save lives.

Pediatric cardiologists are using 3-D printing technology to gain more precise insight into heart defects of individual patients, allowing doctors to better prepare for complex surgeries and potentially improve outcomes. This personalized info is especially important since birth defects are often extremely complex and vary greatly from one patient to another.

The technology enables doctors to actually perform a “virtual surgery” before the actual treatment, further enhancing the medical team’s knowledge for each child’s case.

“The 3-D printing revolution could be the answer to understanding complex birth defects and alleviating a variety of birth defects,” said Deepa Prasad, MD, pediatric cardiologist at Cardon Children’s. “These models can be invaluable to the medical team in determining the best approach for treatment, especially for surgeries and catheterization-based procedures.”

The life-sized, 3-D hearts also provide medical staff with an excellent visual tool that helps explain health issues to patients and families.

When a child is diagnosed with a congenital heart defect, medical experts traditionally use 2-D imaging such as an echocardiogram to learn the structural details of the defects. Three-dimensional printing allows the heart to be viewed from many angles, with the model showing specific details of for each patient.

“We’ve already used this technology in treating several pediatric patients, including on several infants and children,” said Randy Richardson, MD, radiologist at Cardon Children’s. “Now that doctors and medical staff can hold a 3-D model that shows details of a birth defect, we have another incredible benefit in improving a child’s life.”

The printer can create a model heart in less than a day, usually in about 18 hours.

“Future use of 3-D printing may include bioprinting technology that could revolutionize healthcare,” said Dr. Prasad. “The potential to print living tissues that will grow with a child is actually close to reality.”

About Cardon Children's Medical Center

Cardon Children’s Medical Center provides pediatric care for children, from newborns to teens. Services include cardiology, cardiothoracic surgery, immediate access to Level I trauma services and emergency care, a Level III neonatal intensive care unit, general pediatrics, surgical and rehabilitation services, hematology/oncology, urology, gastroenterology, neurology and outpatient services. For more information, visit www.BannerHealth.com/CardonChildrens.

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