October 8, 2015

Life-Threatening Heart Condition of 5-Year-Old Mia Gonzalez Carried a Grim Prognosis - 3D Printing from Stratasys Changed Her Life

Miami's Nicklaus Children's Hospital Used 3D Printed, Life-Like Anatomical Heart Model to Study Complexity, Set Strategy for Repair

MINNEAPOLIS & REHOVOT, Israel--(BUSINESS WIRE)-- Stratasys Ltd. (Nasdaq:SSYS), the 3D printing and additive manufacturing solutions company, published the medical success story of 5-year-old Mia Gonzalez. The girl suffered from a rare heart malformation called double aortic arch, a condition in which a vascular ring wraps around either the trachea or esophagus, restricting airflow. The life-threatening condition could only be repaired through an intricate operation. A 3D printed model of Mia's heart enhanced the planning phase so the surgical team could optimally visualize Mia's specific heart structure, shown in this video.

This Smart News Release features an interactive multimedia capsule. View the full release here: http://www.businesswire.com/news/home/20151008005292/en/

Five-year-old Mia Gonzalez suffered from a rare heart malformation called double aortic arch. A Stratasys 3D printed model of her heart was used to perform a successful operation (Photo: Stratasys).

"With a 3D printed model, we were able to figure out which part of her arch should be divided to achieve the best physiological result."

–Dr. Redmond Burke, Director, Pediatric Cardiovascular Surgery, Nicklaus Children's Hospital, Miami

"The challenge is a surgical one, how do you divide this double aortic arch and save her life without hurting her," said Dr.

Redmond Burke, Director of Pediatric Cardiovascular Surgery at Nicklaus Children's Hospital, part of Miami Children's Health System. "By making a 3D model of her very complex aortic arch vessels, we were able to further visualize which part of her arch should be divided to achieve the best physiological result. It's very powerful when you show a family 'this is your baby's heart and this is how I'm going to repair it.'"

Often misdiagnosed as asthma, Mia's symptoms included labored breathing and choking. Once the condition was diagnosed using a CT scan at Nicklaus Children's, Mia's family was told she would need surgery to repair the arches in her heart.

A 3D Printed Heart Model

As a rule, surgeons prefer to develop a plan before entering complex operations. Unfortunately, no two people are alike – with each organ differing from those in textbooks. To improve patient outcomes, surgeons at Nicklaus Children's Hospital have begun to leverage advanced tools, including Stratasys 3D Printers – charting a course using lifelike 3D printed organs.

"Once patient scan data from MR or CT imaging is fed into the Stratasys 3D Printer, doctors can create a model with all its intricacies, specific features and fine detail. This significantly enhances surgical preparedness, reduces complications and decreases operating time," said Scott Rader, GM of Medical Solutions at Stratasys.

After 3D printing and examining Mia's heart model, Dr. Burke determined the best course of action by scrutinizing and visualizing the surgical solution on the model. The heart model supported doctors in performing an extremely successful surgery.

Mia recovered quickly and is finally living the life of a happy and healthy child. "Going from four-and-a-half years of not knowing to being back to normal in less than two months: That's been a great experience for us," said Mia's mother, Katherine Gonzalez.

The 3D Printing Solution

Stratasys reseller, AdvancedRP, supplies 3D anatomical models to the hospital for surgical planning purposes. The models are produced by a Stratasys Objet500 Connex3 Multi-Material 3D Printer. Medical models can be created to simulate the same flexibility of human organs, allowing surgeons to accurately practice procedures. The 3D printer offers a wide range of material properties, enabling anatomical models to accurately replicate organs, flesh or mimic the rigidity of bone. Based on the success of recent surgeries, the hospital has now installed its own Stratasys 3D Printer.

Founded in 1950 by Variety Clubs International, **Nicklaus Children's Hospital** – part of Miami Children's Health System – is South Florida's only licensed specialty hospital exclusively for children, with more than 650 attending physicians and over 130 pediatric sub-specialists. The 289-bed hospital is renowned for excellence in all aspects of pediatric medicine with several specialty programs ranked among the best in the nation in 2008, 2009, 2010, 2011, 2012, 2013, 2014 and 2015-16, by U.S. News & World Report. The hospital is also home to the largest pediatric teaching program in the southeastern United States and has been designated an American Nurses Credentialing Center (ANCC) Magnet facility, the nursing profession's most prestigious institutional honor. For more information, please visit www.nicklauschildrens.org.

For more than 25 years, **Stratasys Ltd. (Nasdaq:SSYS)** has been a defining force and dominant player in 3D printing and additive manufacturing – shaping the way things are made. Headquartered in Minneapolis, Minnesota and Rehovot, Israel, the company empowers customers across a broad range of vertical markets by enabling new paradigms for design and manufacturing. The company's solutions provide customers with unmatched design freedom and manufacturing flexibility – reducing time-to-market and lowering development costs, while improving designs and communications. Stratasys subsidiaries include MakerBot and Solidscape and the Stratasys ecosystem includes 3D printers producing prototypes and parts; a wide range of 3D printing materials; parts on-demand via Stratasys Direct Manufacturing; strategic consulting and professional services; and Thingiverse/GrabCAD communities with 5+ million free design components, printable files. With 3,000 employees and 800 granted or pending additive manufacturing patents, Stratasys has received more than 30 technology and leadership awards. Visit us online at: www.stratasys.com or http://blog.stratasys.com.

Attention Editors, if you publish reader-contact information, please use:

- USA 1-877-489-9449
- Europe/Middle East/Africa +49-7229-7772-0
- Asia Pacific +852 3944-8888

View source version on businesswire.com:
http://www.businesswire.com/news/home/20151008005292/en/

Stratasys Media Contacts
US
Danielle Ryan
Stratasys
+1-952-906-2252
danielle.ryan@stratasys.com
or
Europe
Jonathan Wake / Miguel Afonso
UK Bespoke
Tel: +44-1737-215200
stratasys@bespoke.co.uk
or
Stratasys
Arita Mattsoff / Joe Hiemenz
Stratasys
Tel. +972-(0)74-745-4000 (IL)
Tel. +1-952-906-2726 (US)
arita@stratasys.com
joe.hiemenz@stratasys.com
or
Asia Pacific

Stratasys AP
Janice Lai
Tel. +852 3944 8888
Media.ap@stratasys.com
or
Japan
Stratasys Japan
Aya Yoshizawa
Tel. +81 90 6473 1812
aya.yoshizawa@stratasys.com
or
Korea
Stratasys Korea
Janice Lai
Tel. +852 3944 8888
Media.ap@stratasys.com
or
Greater China
Stratasys Shanghai
Icy Xie
Tel: +86-21-26018886
icy.xie@stratasys.com
or
Mexico, Central America, Caribe and South America
Stratasys Mexico
Erica Massini
+55 11 2626 9229
erica.Massini@stratasys.com
or
Brazil
Tatiana Fonseca
GAD Communications
Tel: +55-11-3846-9981
tatiana@gadcom.com.br

Source: Stratasys Ltd.