

The Hawthorn

CONNECTION

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Radiology and 3-D Printing

by Stan Hosler

Wilhelm Roentgen discovered x-rays in November of 1895, and within a few days he had taken the first x-ray photograph, an image of his wife's hand that revealed the bones beneath her skin and the dark shadow of her wedding ring. According to sources familiar with the event, Bertha Roentgen was so alarmed by the ghostly image that she fled her husband's lab and refused to return.

During the 20th and 21st centuries Roentgen's discovery has prompted additional imaging technologies, including MRI, ultrasound, thermography and PET scans. Our amazement with these technologies echoes that of Bertha Roentgen, and we are fascinated with images of our bones and organs. Additionally, technology can now convert these 2-D images into detailed 3-D models of our anatomy.

There are multiple medical applications for 3-D printing, including implants, prostheses and anatomical models. According to the National Institutes of Health website (www.nih.gov) implants and prostheses can be created by translating x-ray, MRI and CT scans into printable digital files. Printed implants will be most cost-effective for cranial, dental and spinal replacements that are relatively small and somewhat standardized. The systems

required for printing implants and prostheses are still being refined, but 3-D printing could become routine as radiology integrates with other specialties to make this technology more mainstream.

Printed 3-D anatomical models will serve as valuable training tools for research institutions and medical schools. Researchers and physicians-in-training will be able to study patients' anatomies without involving patients directly and without any additional risk to patients' health. Once digital files are translated and stored, they can be printed as many times as necessary to share models among multiple individuals and institutions—subject, of course, to appropriate safeguards for patient privacy.

The application for printing anatomical models is intriguing, because it means that heart surgeons and neurosurgeons can conduct surgical prep by reviewing a physical, 3-D model of an individual patient's heart or brain. With no risk to the patient they can study the structure of the bones, nerves, vessels and tissues they will encounter during surgery, and they can determine in advance the best corridors for safely navigating the patient's existing anatomy.

We can be grateful for the work of Wilhelm Roentgen and the contribution of his wife, Bertha, and we can look forward to the advances of 3-D printing that will make our lives more healthy and productive in the 21st century.

Charitable Jeans Week

Hawthorn Gives Back: Contributing Over \$500 to Nationwide Children's Hospital

by Stan Hosler

Jennifer O'Connor, Human Resources Director at Hawthorn Physician Services, has reported results for Hawthorn's second quarter charity initiative. "Our quarterly Jeans Week charity raised over \$500 for Nationwide Children's Hospital," O'Connor said. "Team members that contributed to the charity could wear jeans to work during the week of June 12, and we were pleased with our overall level of participation. The total amount raised was \$560." O'Connor explained that Jeans Week is observed four times a year, with a different charity selected for each quarter.

Nationwide Children's Hospital (CHO) treats over one million children each year. The mission of CHO is to care for every child, for every reason, regardless of the family's ability to pay. Congratulations to the generous Hawthorn team members who contributed to this worthwhile cause.



Hawthorn Physician Services Corporation

2017 Q3 Employee Service Awards

Dana M.- 10 Year Anniversary

Q2 2017 100% on Audits

***Judi J. Diane T. Dana M.
Georgine P. Joyce B.***



Addressing Complexity with Certainty

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