



THE CHILDREN'S MEDICAL CENTER OF DAYTON

Pediatric Clips

Improved patient care with PACS – Elizabeth Ey, MD

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Pediatric Clips from The Children's Medical Center are quick reviews of common pediatric conditions.

The Children's Medical Center is the region's pediatric referral center for a 20-county area. As the only facility in the region with a full-time commitment to pediatrics, Children's offers a wide range of services in general pediatrics as well as in 35 subspecialty areas for infants, children and teens. We welcome your inquiries about services available – call 937-641-3666 or e-mail marketing@childrensdayton.org.



All kids need special care — All kids need Children's.

CASE: 6-YEAR-OLD STRUCK BY TRUCK

A 6-year-old boy was playing in the front yard of his home and suddenly darted into traffic to chase a ball. He was struck by a truck and thrown 20 feet. EMS was activated and the child was brought to The Children's Medical Center of Dayton. The child arrived by ambulance, but no guardian was available for registration data. The child was assigned the random name "Trauma, July" and a medical record number. The child was rapidly assessed and was found to have a GCS of 10 with facial lacerations, a large left frontal hematoma, abdominal distention and tenderness as well as deformity and swelling at the left thigh.

Portable radiographs were obtained in the trauma room including the cervical spine, chest, abdomen, pelvis and femur. After the child was stabilized, he was sent for a CT scan of the head, cervical spine, abdomen and pelvis. Additional radiographs were obtained in the radiology department. He was found to have a small left frontal subdural hematoma with a depressed skull fracture which extended along the roof of the orbit, a fracture of the left mandibular condyle, a Grade II splenic laceration with small hemoperitoneum and an overriding fracture of the mid-femoral diaphysis.

Consultations were requested of the neurosurgeon, ophthalmologist,

plastic surgeon, oral surgeon, orthopedic surgeon and intensivist. The child's parent arrived and provided the correct name and birth date. The child was taken to the operating room to repair the depressed skull fracture and evacuate the subdural hematoma. The child's correct demographic data were added to the studies that had already been completed under a different name. In the meantime, the consultants were able to view the child's imaging studies simultaneously via PACS at view stations in the emergency department, radiology, intensive care unit, surgery and via the internet in the office.

CASE DISCUSSION

This is a fictitious case, but illustrates an example of how PACS can improve the delivery of patient care. PACS stands for Picture Archiving and Communication System. It represents the integration of digital imaging from radiology with the hospital information system (HIS). Since the images are in digital format, multiple users can view them with reports simultaneously. This reduces the time spent locating and physically moving films and reports to each physician. It allows physicians to view the studies from a convenient location whether they are in the emergency department, radiology, intensive care, operating room or from their office via the internet.

Dayton Children's has used a teleradiology system within the hospital for several years. This system has not been integrated with the HIS. This meant that orders for radiology

studies were not part of the teleradiology system. The patient demographics were manually re-entered into the teleradiology system. The reports were not linked electronically to the teleradiology imaging study. Also, the teleradiology system helped with distribution of images, but did not serve as a permanent archive of the studies. The studies resided on the teleradiology system for several weeks before they were replaced by newer images. The radiology studies were archived on film. The films and reports were stored together in a film jacket. Onsite storage space was limited to the most recent 14 months or so of work and then the inactive jackets were sent offsite for storage. This process was fraught with errors and inefficiencies.

With the installation of computed radiography late this summer,

virtually all of the imaging equipment in radiology will be digital. Previously, the conventional films were "digitized" or scanned electronically for transmission on teleradiology. This reduced the resolution of the image. With computed radiography, the conventional studies are obtained electronically using a digital plate and reader. There is no loss of resolution when the study is transferred to the teleradiology system or PACS.

The installation of PACS late this year will improve accuracy and efficiency in image distribution. PACS will integrate the images, HIS and the radiology information system (RIS). The status of a patient's study can be checked from the time it is scheduled, performed, acknowledged as completed by the technologist, reviewed and dictated

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by the radiologist. The report also will be linked with the images. When a patient's information is changed or corrected, the new information will be linked to the study that already has been completed. PACS will store approximately 2 years worth of radiology studies onsite for immediate viewing. Eventually, the older studies will be stored electronically in a long-term archive and will be available for viewing in a matter of minutes.

There will be clinical viewing stations in radiology, clinics,

inpatient areas, emergency department and surgery. Clinicians with web access through Dayton Children's will be able to view images on their computers in the primary care setting. The image quality and transmission speed for the web access will be determined by the individual physician's internet connection and computer system. Patient studies can be distributed electronically on CD. There also will be secure electronic connections with other hospitals, such as Cincinnati Children's and Columbus Children's.

The installation of PACS is one of the first steps in creating the electronic medical record (EMR) at Dayton Children's. The EMR will integrate imaging studies and results, laboratory results, outpatient records and inpatient records in a single "portal" or site. These advances in communication and information distribution will help physicians and staff at Dayton Children's continue to improve the quality of health care for children in the Miami Valley.

FEATURED SPECIALIST INTRODUCES TWO NEW RADIOLOGISTS



Elizabeth Ey, MD, is the medical director of radiology and nuclear medicine at The Children's Medical Center of Dayton. She is pleased to welcome two new specialists to her department—**Dawn Light, MD, MPH** (above left), and **Barbara Wolfson, MD** (above right).

Dr. Wolfson earned her medical degree from New York Medical College. She completed her diagnostic radiology residency at New York Medical College Affiliated Hospitals and a fellowship in pediatric radiology at St. Christopher's Hospital for Children in Philadelphia.

Dr. Wolfson is a member of the American Board of Radiology. She was named one of the "Top Docs for Kids" by *Philadelphia* magazine and was nominated for the Golden Apple Teaching Award by the MCPHU School of Medicine.

She is a member of the American College of Radiology, the Radiological Society of North America and the Neuhauser Society for Pediatric Radiology.

Dr. Light earned her medical degree from Wright State University. She completed her family practice

residency at Eisenhower Army Medical Center in Ft. Gordon, Georgia, and a family practice fellowship in faculty development at the University of North Carolina in Chapel Hill. She also completed a faculty development fellowship and a diagnostic radiology residency at Madigan Army Medical Center in Ft. Lewis, Washington.

Dr. Light is board certified in diagnostic radiology by the American Board of Radiology. She is a member of the American College of Radiology and the Order of Military Medical Merit, among others.

CONTACT INFORMATION

For your pediatric patients, the area's most sophisticated CT scanner, an onsite MRI and a cardiovascular laboratory are available at Dayton Children's. To contact radiology, call 937-641-3888.



For further information about The Children's Medical Center or its specialists, contact us at 937-641-3666 or marketing@childrensdayton.org.



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