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CONTRIBUTIONS FROM STAFF

COMPUTER RADIOGRAPHY (C.R.) SYSTEM

INTRODUCTION

Computer radiography imaging system is slowly gaining a foothold in radiological departments worldwide. This has many advantages than our conventional radiography. The use of computer radiography would result in a lower retake and allow for reduced exposure dose.

What is CR?

Computer Radiography means digital imaging system. CR is a process which captures digital radiographic images, Storage phosphor plate is used for exposure. This phosphor plate captures and stores the x-ray. The image is then developed in a CR reader. The CR reader extracts the information and produces a digital image.

STORAGE PHOSPHORS PLATE

CR image plates are made of BaFBr and BaFI. Because of this mixture the material is often just called Barium Fluoro halidy. CR plate is flexible screen that in enclosed in a cassettes similar to a screen film cassettes. [look like conventional intensifying screen]. They do not emit the light immediately after the x-ray exposure. They store the x-ray energy in the form latent image. This latent image is then read out in CR reader. Storage phosphor is characterized by their ability to respond over a very wide range of x-ray exposure. This gives radiographers “exposure latitude” without worrying about over or under exposure. So we can avoid retake due to under or over exposure. The speed of the phosphor plate work at the optimal exposure levels corresponding to a ~200 speed screen film detector system.

CR-LATENT IMAGE READOUT

After the radiography exposure the CR plate is moved in the CR reader unit and imaging plate is mechanically removed from the cassettes. The image plate can be read with laser line source. Either He Ne or Diode laser beam. This laser beam passes through various optical components before it scans the phosphor plate. When laser beam scans the plate the luminescence is emitted in all direction from a phosphor plate. This light is than collected by a collecting device [Fiber optic guide] and sent to photomultiplier tube where the light signal is converted in to a electrical signal, This signal is digitized and the image is store in a computer as a digital signal. After scanning the phosphor plate is erased by exposing it to bright light. This removes the previous image from the phosphor plate and the plate can be used for other exposure. Regular cleaning of the phosphor plate holds the key to high quality radiographs.

CR WORKSTATION

Work station is the computer is networked with computerized radiography reader. This work station has software to enable CR image manipulation like image pre processing, find the patient image information, scale the date to appropriate range, contrast enhancement, Anatomy specific gray scale manipulation and spatial frequency enhancement.

FILM PRINTER is networked with workstation. This printer is readily loaded with light tight pack of films of different sizes. This print is output device of the workstation. Patient Radiography images can select for printout (Hard copy) from the workstation with appropriate grayscale.

CR image can also be sent over LAN (Local area network) or WAN (Wide area network) or even tele radiography. Can store image on a CD through workstation.

IMAGE MANIPULATION can also be referred as post processing. This helps to view and detect anomalies in dark or light areas of the films, high light certain structures, enhance edge, Brightness, Contrast adjustment, Magnify, Crop, Pan measuring Values, Scale as well as put annotation, etc.,

In hard copy printing, sometimes two images to be printed on the same film, the image size may need to be further reduced to accommodate two images on a single film (Multi formation)

ADVANTAGES

You do not have to worry so much about over or under exposure. Image quality can be superior to conventional film. One CR system can service multiple radiology room. No chemical abatement issue. Significant reduction is exposure without loss of density. Faster and better post processing as a digital image can be easily linked with PACS.

CONCLUSION

Computer radiography improves image quality and reduce patient dose directly by decreasing exposure and indirectly by avoiding repeat exposure.

By: Robert A. Burgess(Supervisor, Radiography)

EMPLOYEE FEATURE



In this edition of our newsletter, we are highlighting some news worthy development. Dr Jacob Chacko ,MS (General Surgery), MCh (Paediatric Surgery), DNB (Paediatric Surgery) former HoD Pediatric Surgery at CMC Vellore after retirement has assumed the leadership role of a Senior Consultant in Surgery Department at CIHSR since last year. Given his extensive experience & skills, the department stands to gain considerably & in-fact is fast developing. CIHSR is fortunate to have him. He travels extensively to other mission hospitals in India like Dr HG Robert's Hospital in Shillong, Duncan Hospital in Raxaul, Bihar, Baptist Christian Mission Hospital, Tezpur, Makunda Christian Leprosy & General Hospital, Karimganj, Assam, Asha Kiran Hospital, Lamtaput, Orrisa etc.

He has worked in the Children's Hospital in Adelaide, Australia for two years and was exposed to different aspects of paediatric surgery in a different setting. Also had the opportunity to visit four different paediatric surgical centers in the US, to observe the latest developments.

He has worked in small mission hospitals in Andhra Pradesh and Kerala, and considers this a very valuable part of my life. Special areas of interest include, paediatric urology, burns in children, reconstructive surgery for urinary incontinence, anorectal malformations and long term psychosocial needs of children and families with congenital malformations and malignancies. He has presented papers in different conferences and published several articles in international journals. He is also involved in conducting burns training programmes for health personnel, in conjunction with the American Burn association.

As the Associate General Secretary, EMFI, he has visited numerous Medical Colleges in Jhansi, Gwalior etc. attending Retreats, Meetings, Bible studies & interacting with the medical students.

His wife, Mrs Bharathy Jacob, was the former Dean of the College of Nursing, CMC Vellore. They have two sons- the eldest after completing his Phd in Bio-Informatics is working with IBM in USA & the younger son is in Bangalore pursuing his BSc in Information Technology. They are now settled in Vellore.

An avid animal lover, his hobbies include flower & vegetable gardening. (By: Ms. Thingngamphy Vashum, Human Resource)

EMPLOYEE'S BIRTHDAYS IN MAY

You're not getting older, you're getting better! And you are wished the finest things in life today & always. CIHSR wishes you a 'HAPPY BIRTHDAY!'

Ajaya Kumar Maharana	22 nd May
Mr Tiawapang Jamir	25 th May
J Epibeni Murry	26 th May
K Wungchingla	26 th May

LEARN A WORD

Dandle /DAN-dl/

1. To move (a baby, child, etc.) lightly up and down, as on one's knee or in one's arms.
2. To pet, pamper.



RECENT HAPPENINGS AT CIHSR

The 1st Fresher's social for the Nurses was held at the new dental OPD on 7th April, 2011. With Ms. Masarenla leading the programme, it was Ms. Arhoni who gave the Invocation prayer and Dr. Abraham Joseph, Director, CIHSR & Dr. Sedevi Angami, MS, CIHSR who delivered messages. On the occasion, the freshers presented a special song and choreography; senior staffs presented a comedy skit. The evening ended with a closing prayer by Ms. Keneisenu.

The CIHSR Board of Directors meeting was held on 6th May, 2011.

International Nurses' Day, with the theme 'Closing the Gap: Increasing Access and Equity' was celebrated on 12th May at the new Dental OPD. Mrs. Vizheli, Nursing Superintendent D.H.D was the theme speaker.

NEW STAFF

Professor Robin Thambudorai, MS (General Surgery) along with his family has joined as a Senior Consultant in the department of General Surgery by. After completing his MS from CMC Ludhiana he had joined his alma-mater as HoD Upper GI & HPB Unit & was involved in the Surgical Endoscopy Service.



He was also with the Royal Perth Hospital, Western Australia as Senior Registrar / Fellow Upper GI & HPB Surgery Unit; as Fellow at the Royal Prince Alfred Hospital, Sydney; Assistant Professor, Department of General Surgery at Pondicherry Institute of Medical Sciences, Pondicherry; as Senior Registrar Global Hospitals, Hyderabad & many other places.

His wife Serena Priya(MA in English) & two daughters Sarah Ragini & Sharon Rohini will be joining us soon.



Dr Rohan Michael Ramesh, MBBS from Bangalore has joined the Community Health Department. Prior to joining CIHSR, he was with CHAD, CMC Vellore for fourteen months to be precise.

He had a brief stint with BIOCON Foundation, Bangalore & Samaritan Medical Aid & Research Trust, Periamallai, Tamil Nadu.

Mentioned in his testimonial by his former boss, it is believed that he is musically talented.....I am sure we can expect a lot of contribution from him!

S Vasanth Kumar, BSc(Electronics) & PG Diploma (Medical Instrumentation Technology) has joined CIHSR as Biomedical Engineer. Prior to joining CIHSR he was with Sri Sai Electrical co., Coimbatore as Biomedical Engineer for a little more than three years.



He has also worked in Dr Noor Mohd. Khan General Hospital, Saudi Arabia (two years) & the Bangalore Hospital (4 years) as Biomedical Engineer.

His wife Mrs Santhya (MSc in Diet & Nutrition) & son Ravikanth (10 months old) will be joining the CIHSR community soon.



Adaikkala Jesuraj K., B Pharm, PGDHA & MBA (Hospital Management) has joined CIHSR as Material Resource Officer. Prior to joining our Institute he was with the Karunya hospital, Coimbatore as Purchase Officer. He has also worked in many other hospitals & to name some few...Mercy Hospital, Kolkata, Baptist Christian Hospital Tezpur, Burrows Memorial Christian Hospital, Alipur & Church of South India, Chennai.

His wife Dr Gracy D, MD (Siddha) will be joining our community by the end of this month.

THOUGHT FOR THE DAY

Perhaps the most valuable result of all education is the ability to make yourself do the thing you have to do, when it ought to be done, whether you like it or not; it is the first lesson that ought to be learned; and however early a man's training begins, it is probably the last lesson that he learns thoroughly. Thomas H. Huxley

Heartiest Congratulations to all the staff for our first ever newsletter!