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Surgical Picture Archival Communication System (S-PACS) SGPGI, Lucknow Case Study

Prof. S. K. Mishra

**Sanjay Gandhi Postgraduate Institute of Medical
Sciences (SGPGIMS),**

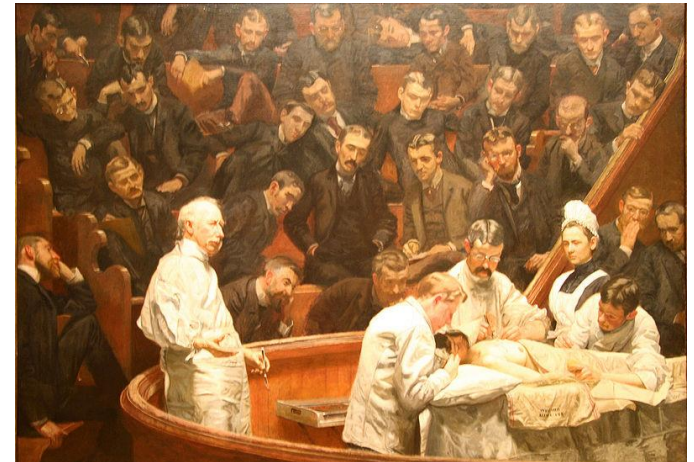
**Head, Dept. of Endocrine Surgery & Faculty I/C,
SGPGI Telemedicine Programme**

Lucknow, India

- **Outline**
- **Background**
- **Work in Progress**
- **Design, Development & Operation**
- **Technological Advancement**
- **Enterprise Digital OT infrastructure**
- **Conclusions**
- **Contact info of Presenter**

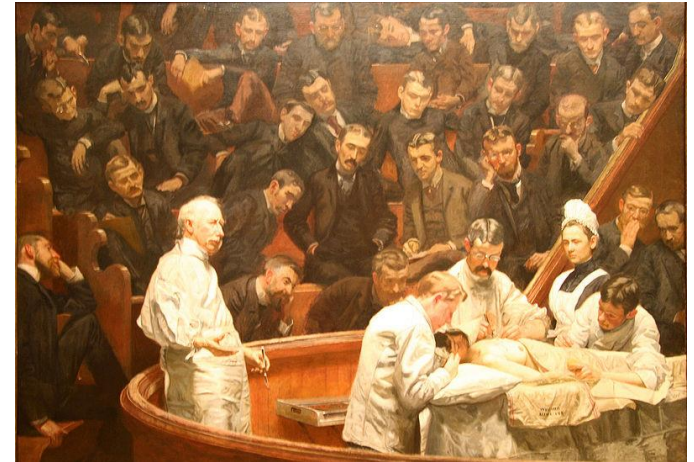
Background

- **Demonstration of Live surgical procedures from a gallery attached to the operation theatre**
- **Current system of education: Glass partition between OT and gallery. No interaction.**
- **Surgical Workshop using interactive local audio-video network, Tele-medical videoconference and edited video**
- **Web based system: Live web casting, VoD**
- **Advancement in interventional procedures and complex technology aided surgical intervention demands skill education.**

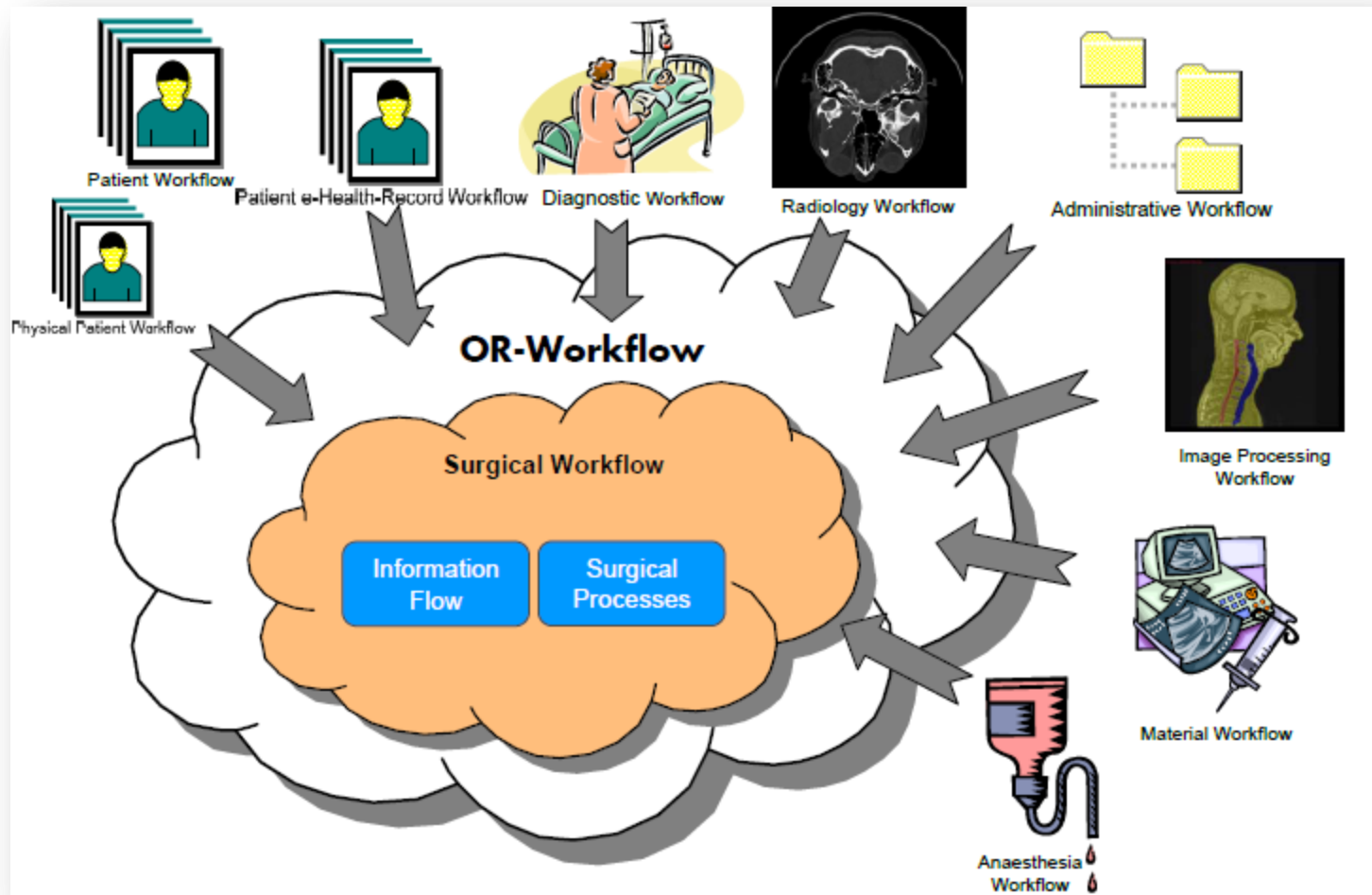


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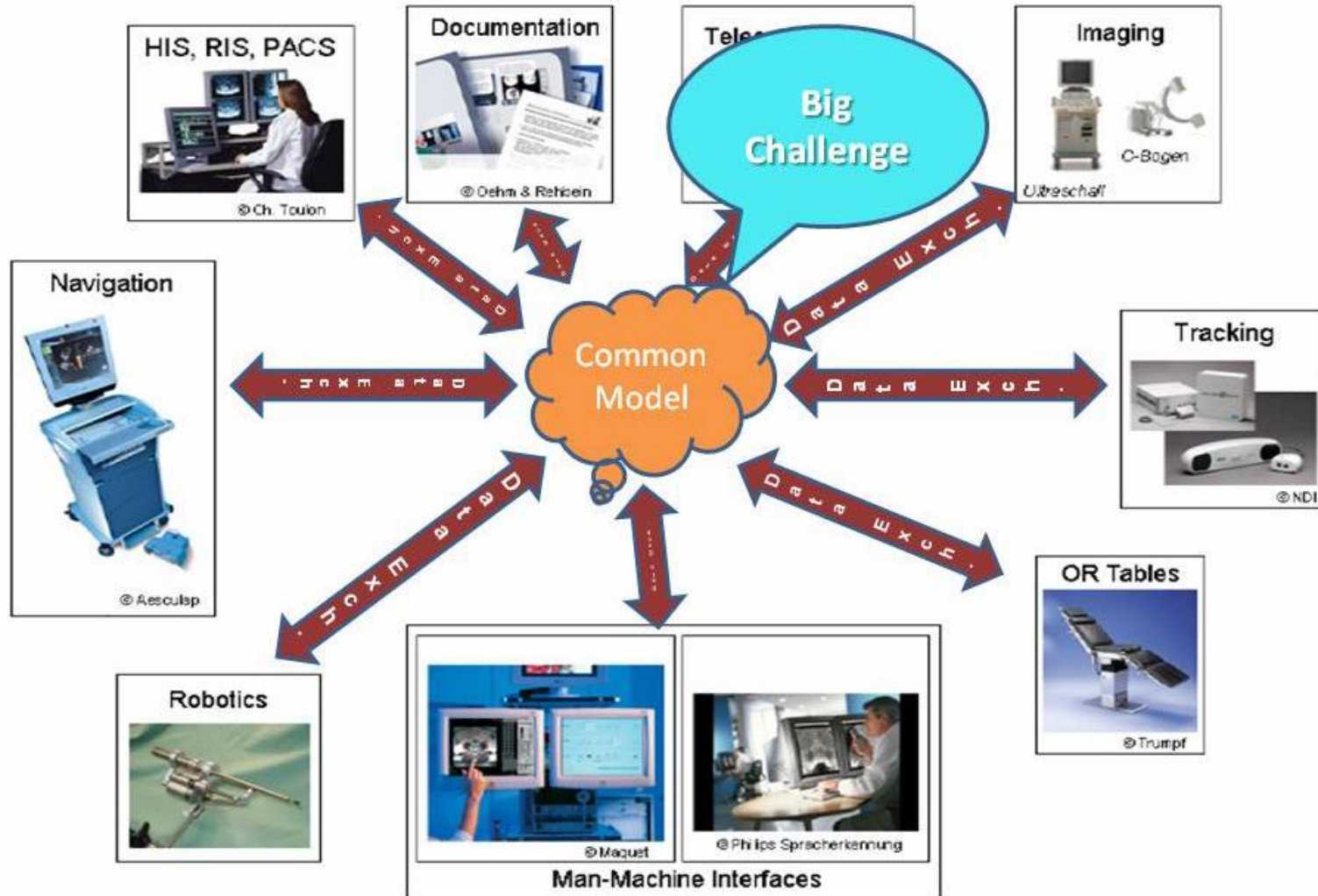
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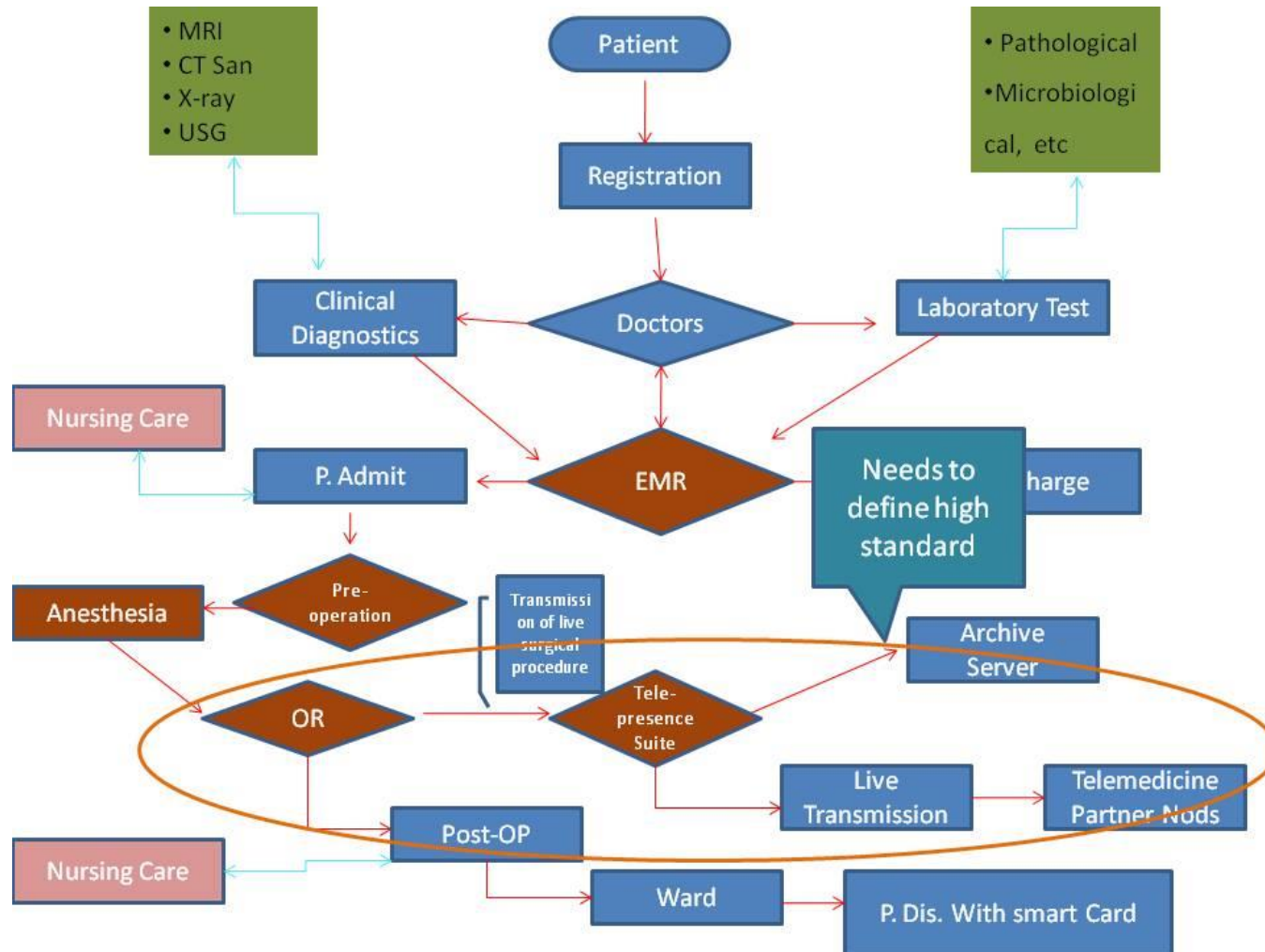
Work Flow in the hospital



Clinical Data Exchange



Work Flow in the hospital



Computer Assisted Digital Exchange

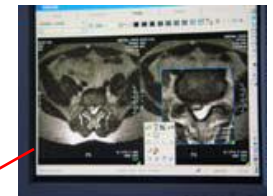
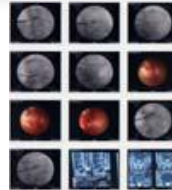
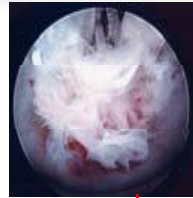
Video Endoscopy Monitor

Image Manager
- Report

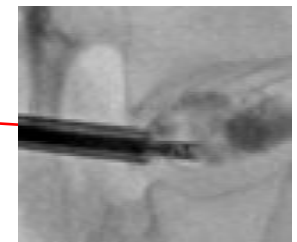
C-Arms Images



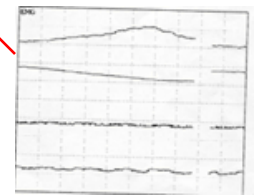
ECG Monitoring



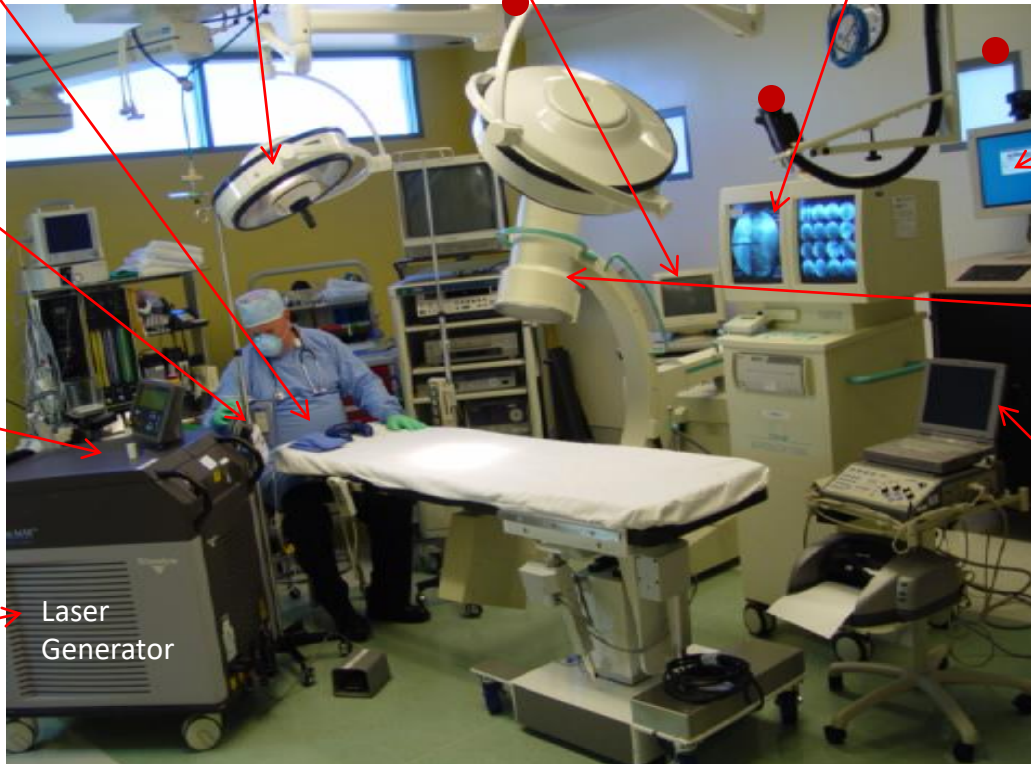
MRI Images- PACS



C-Arm Fluoroscopy



IMG Monitoring



Left Side OR



Image view Boxes

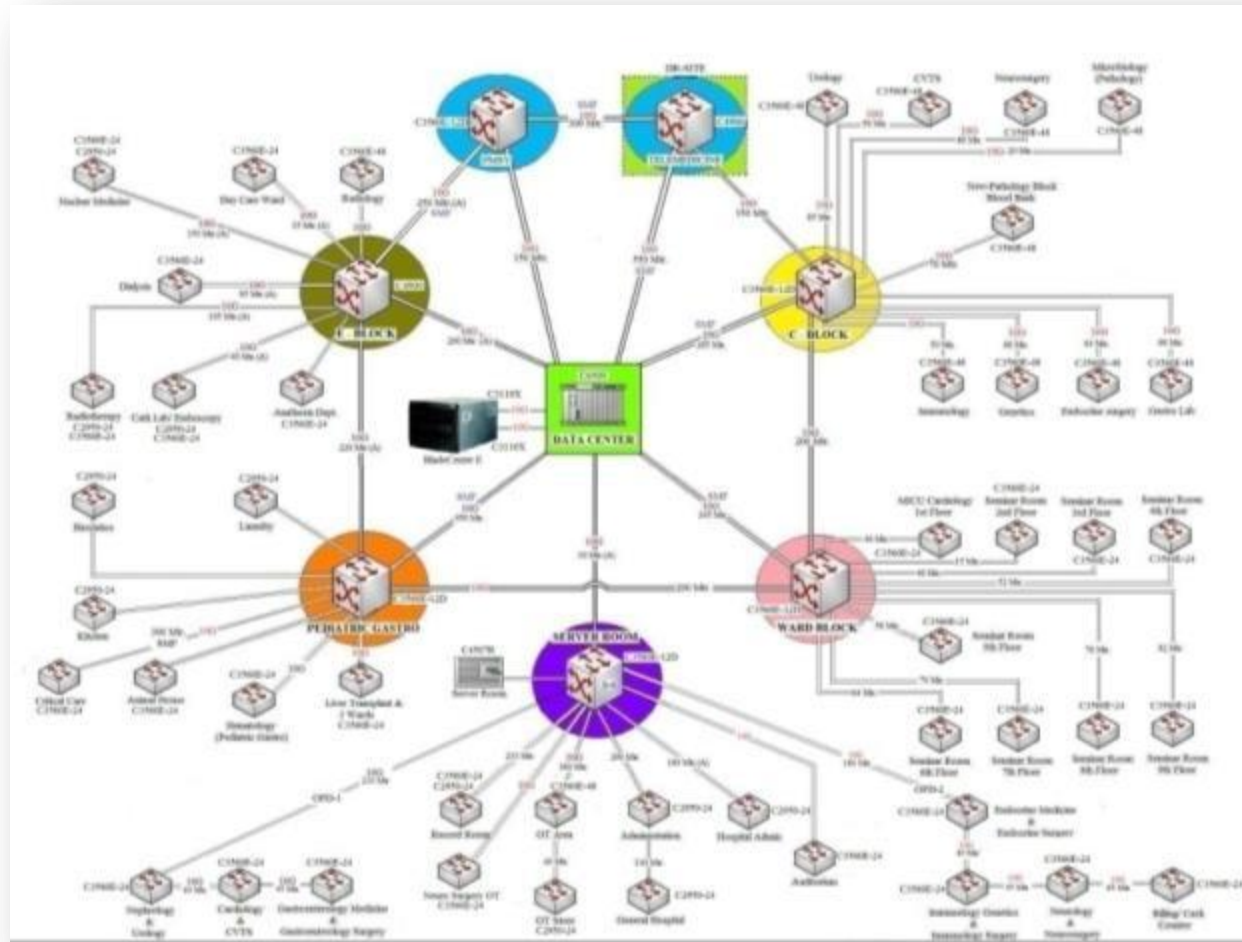
Laser
Generator

Teleconferencing - telesurgery

- Integrated Operation Theatre
- Surgical Skill Transfer & Management System
- Preparation of web based video content which can be accessed by outside world through interactive videoconferencing/ real time streaming/Video on Demand (VOD) was the main objective of this project.
- Integration of image inputs
 - In light camera
 - Laparoscopic camera
 - Operative microscope
 - Room camera mounted in the ceiling
 - Audio / Videoconference system
 - Intra-operative Ultrasound, Fluoroscopy
 - Vital Sign monitor record
 - Any other equipment used during surgery

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Intra Hospital Telemedicine Network Riding over Hospital Information System Network



Integrated Operation Theatre



Surgical Telepresence



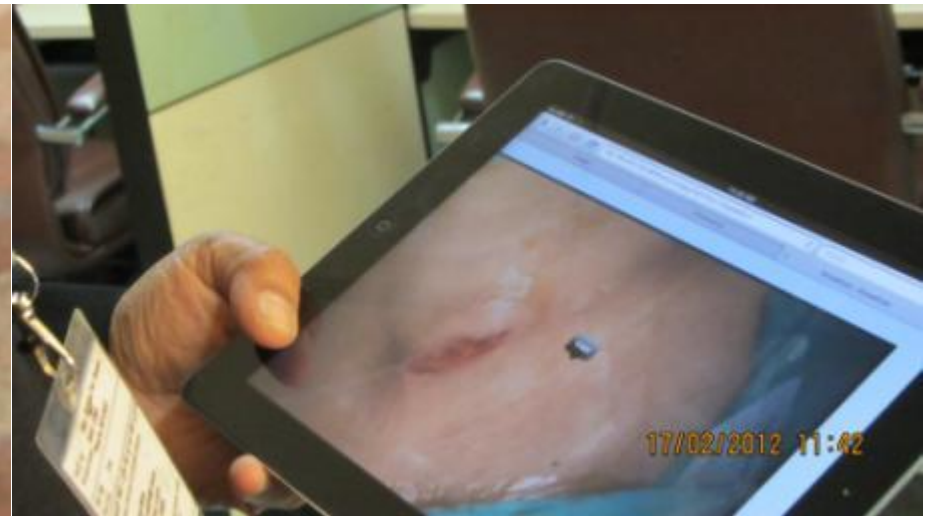
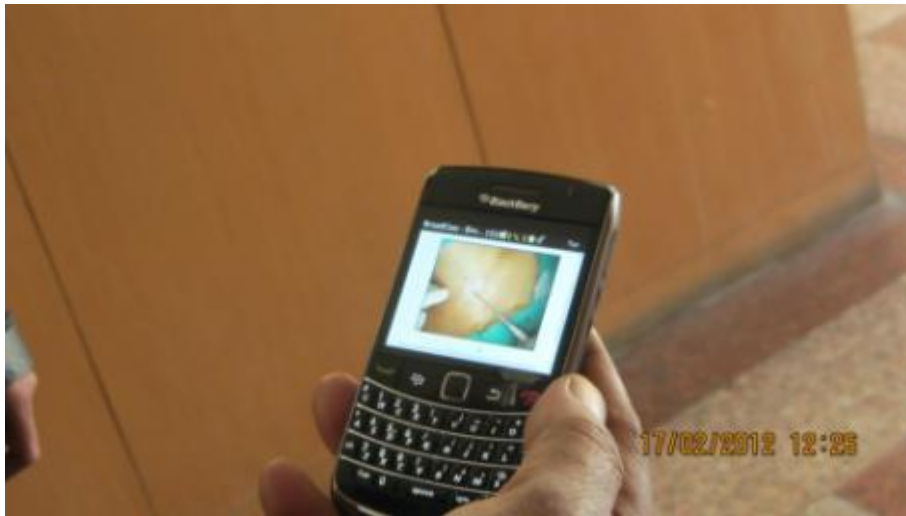
Tele-Collaboration @ Integrated Medical Lecture Theatre



Live Streaming of Surgical Video



Mobile Learning Platforms



SGPGI Knowledge park

Archival

Storage

Knowledge Management

Live Surgical Data Workflow

Harvest

**Professional
Camera**

**Video
Conference**

**Hi-tech
Digital
Lecture
Theater**

**Integrated
Operation
Theater**

Edit

**Green Valley
Edius**

**FCP(final cut
Pro)**

**Adobe
Premiere**

Maya

B4M

Storage

Data Center

Rack Servers

**Streaming
Server**

Sharing

Online sharing

Streaming

**Video
Conferencing**

**Offline Sharing
Developed
Content**

Website





**FCP (Final Cut Pro)
Apple Platform**



**Edius Edit Station
Windows Platform**

Knowledge Parking : Data Center (Health Knowledge Park) & Telemedicine Network Monitoring Stations



**Telemedicine Network
Monitoring Stations**



**Data Center
(Health Knowledge Park)**

Conclusion

- With the maturity of Video over IP technology and lowering cost of high definition video and audio and high resolution visualization enterprise medical image network needs to be designed at least in academic medical institutions.
- SGPGI case study can be studied as a model to work further in this field of medical imaging in particular building infrastructure for skill based training both in house and distance education mode.

Saroj Kanta Mishra

- Head, Dept. of Endocrine Surgery
SGPGIMS, Lucknow, India
- Nodal Officer, School of Telemedicine
& Biomedical Informatics
- skmishra@sgpgi.ac.in
- skmishra_1956@yahoo.com



www.sgpgi-telemedicine.org | www.nrct.in | www.stbmi.ac.in

Thank you for your attention !