



**Taking Cancer Treatment
Into the 21st Century**

“THE HUB & SPOKE MODEL”

AAPM MEETING
NEW ORLEANS
2-16-13

Lane R. Rosen M.D.
Director of Radiation Oncology
and Proton Therapy
Willis Knighton Cancer Center

WILLIS KNIGHTON CANCER CENTER & RADIATION ONCOLOGY

- 70,000 sq.ft. Cancer Center with a thirty thousand sq.ft. addition planned containing a 4th vault (Tomo) and Proton therapy
- American College of Surgeons COC accreditation
- Four radiation oncologists, Six medical oncologists and two gynecologic oncologists with subspecialty interests.
- Radiation Oncology has Dual Accreditation by ACR and ACRO (one of 12 in the U.S)
- Our Team: 4 boarded M.D.'s, 2 PhD and 3 Master level physicists, including residents, 4 RN's, 2 dosimetrist, numerous therapists, auxiliary and support staff, two engineers, and many student researchers



WKCC Radiation Oncology

70-100 patients a day receiving therapy

Active SBRT Program

Diverse skin cancer program

(with superficial X-rays, brachytherapy and electrons)

All CT-based HDR brachytherapy

First 2 Varian 21EX units in the U.S.

- First 2 Amorphous silicon On-line imagers
- First 120 Leaf MLC
- Cone-beam CT and OBI retrofits
- Large open vaults capable of TBI



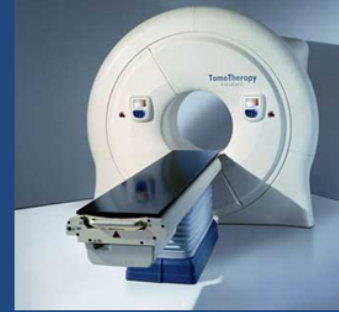
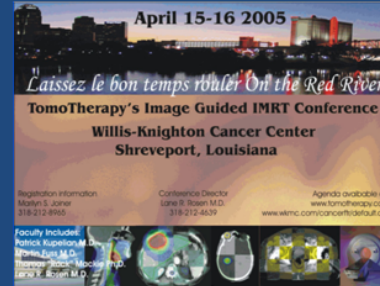
TomoTherapy Center of Excellence: 4th unit in the U.S.

- First WART/Craniospinal/SBRT

First SBRT with TOMO 12-2003

Largest lung SBRT series

Hosts of first IG-IMRT International Meeting attended by physicians and physicists from 16 countries and 5 continents



Willis-Knighton draws eyes of world

A Willis-Knighton Health System conference this weekend drawing medical professionals from five continents should prove educational in more ways than one. It will underscore the not-for-profit medical center's leadership in the use of TomoTherapy in cancer treatment. Willis-Knighton Cancer Center is the third hospital in the world to treat patients with the cutting-edge technology in a clinical setting rather than for research. And, it is hoped, the conference will return home with greater understanding and renewed respect for Shreveport's premier health-care industry overall. A higher profile nationwide is well deserved, for the high standards of care at hospitals and of research at LSU Health Sciences Center and the Biomedical Research Institute of Northwest Louisiana. Although state funding and federal reimbursements will continue to be issues, the health-care industry is the strongest single sector of the local economy, with thousands of medical professionals drawing good salaries. The job market is strong and will continue as the baby boomer generation ages. Willis-Knighton has proved willing and able to make major investments in new technologies such as TomoTherapy. They didn't ask the what it costs," said Dr. Lane Rosen, director of radiation oncology. "They asked, 'Is it good for patient care?' That's the subject of in the U.S. hospital environment." TomoTherapy combines two technologies, CT scans and IMRT or intensity modulated radiotherapy. Tumors can be more accurately located and treated with multiple radiation beams. That means less exposure of healthy tissue to the radiation and therefore quicker recovery with fewer side effects. Willis-Knighton invested nearly \$4 million in the equipment in November 2003 and now treats about 450 patients a year. It has amassed considerable data on the technology, which should be guide oncologists, physicists and radiation therapists in deciding whether to acquire because the industry standard.



WKCC Radiation Oncology

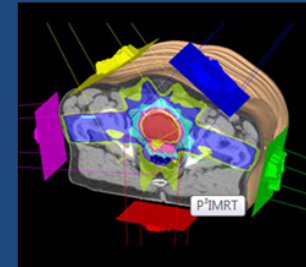
Brachytherapy (Nucletron):

- One of the first U/S guided prostate implants
- One of the first coronary restenosis brachytherapy procedures
- Quadramet administration (non-research)
- All-CT brachytherapy program
- One of the largest Y-90 liver brachytherapy series in the U.S.
- One of the first centers delivering interstitial CT based HDR brachytherapy
- 650+ brachytherapy procedures in 2012 including, lung, biliary, rectum, skin, head and neck, liver, breast, prostate, gyn (LDR and HDR), eyes, and infusional isotopes



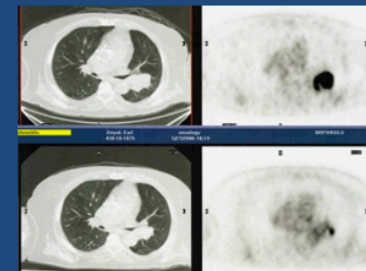
WKCC Radiation Oncology

- Introduced true 3-D therapy -1997 ADAC Pinnacle (first 5 in U.S.)
- Introduction of IMRT -1998. PEACOCK (first 15 in U.S.)
- Introduction of IG-IMRT- 2003 TomoTherapy (4th in U.S.)



- Dedicated CT Simulator-1999

- Oncology dedicated PET scan (8th PET in U.S.) with PET/CT fusion since 2000 (Mirada Beta site)



WHAT TRIGGERED INTEREST IN PARTICIPATING IN A MEDICAL PHYSICS TRAINING PROGRAM?

- ⦿ Our early adoption and leadership role in advanced technologies is a gold mine for physicists-in-training
- ⦿ Longstanding summer rotation site for medical physicists and nuclear physicists from the University of Missouri
- ⦿ All previously employed junior physicists passed all of their boards on first attempts

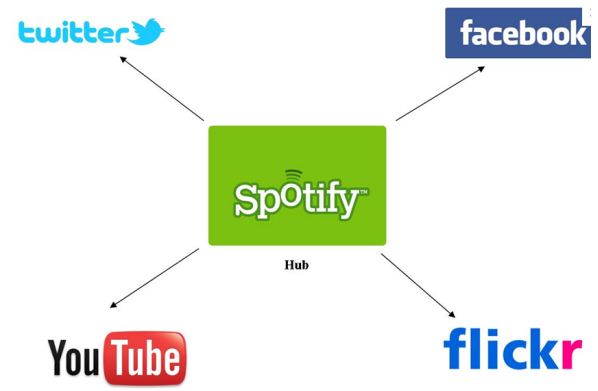
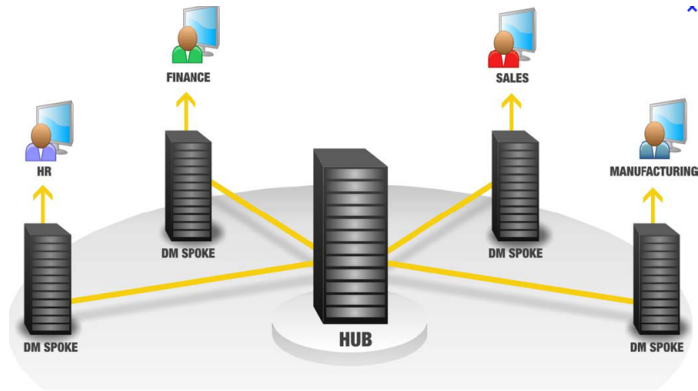
WHAT TRIGGERED INTEREST IN PARTICIPATING IN A MEDICAL PHYSICS TRAINING PROGRAM?

We wanted more teaching opportunities
and felt we could offer value to
physics residents:

- Radiation Oncology residency program was considered
- Medical student rotations already in place
- Physicists interested in TomoTherapy and SBRT often rotated in the department
- Brachytherapy training site relationship with Nucletron for MD's, residents and physicists under development
- Undergraduates and graduate students from LSUS, La Tech and LSUHSC rotate to WKCC

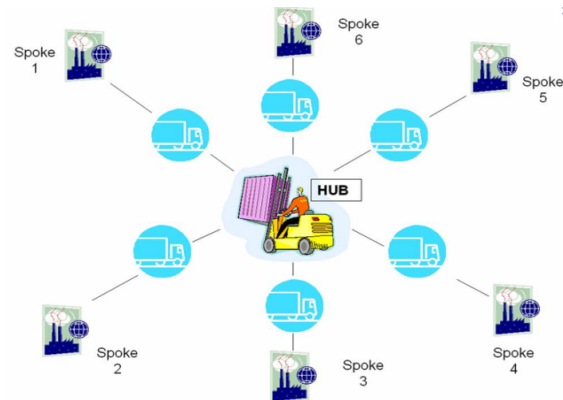
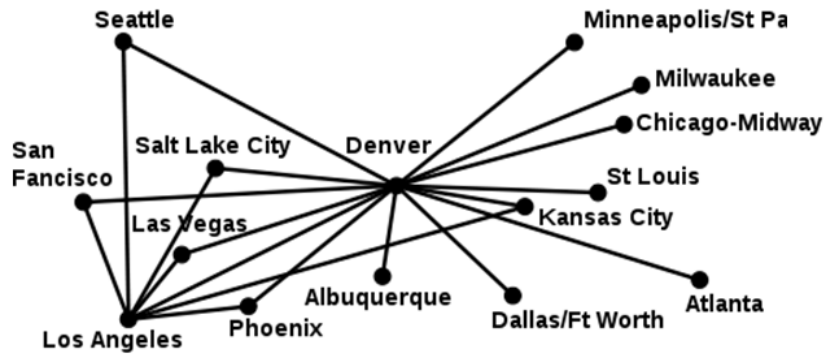
WHAT TRIGGERED INTEREST IN PARTICIPATING IN A MEDICAL PHYSICS TRAINING PROGRAM?

- We were pursuing a medical physics residency program on our own with limited support staff ,background and knowledge of the administrative requirements
- A chance to determine the type of training medical physicists will receive
- Opportunity for collaboration and collegiality among ourselves and other private centers and academic practices



Business
Internet
Airlines
Analytics
Logistics

The Hub and Spoke Model



PHYSICIAN RESPONSIBILITIES TO RESIDENCY TRAINEES:

⊙ Clinical radiation oncology for the physicist:

Examples:

- Skin cancer patient evaluation
- Anatomy instruction
- Understanding of tolerance constraints
- General dose requirements

⊙ Clinical radiation biology for the physicist:

Examples:

- BED concepts
- EQ (2Gy)
- RBE with Protons

PHYSICIAN RESPONSIBILITIES TO RESIDENCY TRAINEES:

- ⊙ Assist with selection process
- ⊙ Real world job preparation throughout training:
Learn what is expected from a clinical radiation physicist
- ⊙ Exit interview: Determination of the strengths and weaknesses of a training program and discussion of a trainees areas requiring honing
- ⊙ Assistance with preparation of the resume (C.V.)

ADVANTAGES TO YOUR HOSPITAL AND DEPARTMENT:

- ⊙ A community and national service
- ⊙ Opportunity for a smaller hospital system or department to have a larger regional impact on the standard of care
- ⊙ Higher likelihood of CAMPEP accreditation
- ⊙ Marketing advantage. A “differentiator”

ADVANTAGES TO YOUR HOSPITAL AND DEPARTMENT:

- ⊙ Keeps current physicists current (teaching and oversight)
- ⊙ Recruitment of future staff that understand your system
- ⊙ Research projects and publications
- ⊙ Reasonable cost for capable in-training physicists to assist your current physics staff

AN INFORMAL POLL

- ⊙ 9 therapists
- ⊙ 3 physicists
- ⊙ 2 administrators
- ⊙ 3 M.D.'s

When asked “Has the addition of a physics residency program improved the overall quality in the department?”

The answer was uniformly “YES”