

AAPM SYMPOSIUM

(IMPORTANCE OF)

NIH FUNDING IN INNOVATION IN RADIATION THERAPY

James A. Deye, Ph.D.
PROGRAM DIRECTOR (ret)
NCI, DCTD, RRP

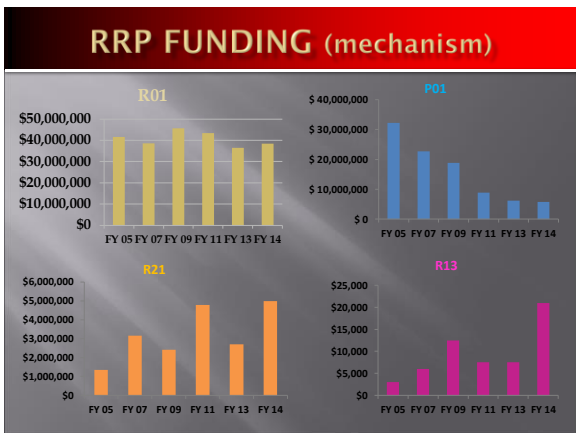
7/15/2015

NIH funds RESEARCH

GRANTS : (RFA)
R01, R21, P01, SBIRs, etc
Cooperative agreements (Uxx)

CONTRACTS: (RFP)
deliverables

WORKSHOPS:
R13
co-sponsored



RESEARCH IN MEDICAL PHYSICS

NCI Workshop 2000

RECOMMENDATIONS:

- **Implementation of linac-based IMRT**
Introduction of X-band technology
3D-CRT and IMRT in clinical trials.
Objective segmentation of normal and malignant structures
Monte Carlo calculations
Optimization for automated planning
Modeling treatment decisions
- **Proton radiotherapy.**
- **Radiation-activated gene therapy**
- We encourage the Medical Physics community to help define the role and **future contributions of medical physics to the emerging biological treatments. The concept that radiation is "focused biology"** has been proposed to stimulate interest in understanding the interaction of physical dose and biologic perturbations at the molecular level.

JOINT WORKSHOP

Technology for Innovation in Radiation Oncology

June 13-14, 2013
Natcher Conference Center
National Institutes of Health
Bethesda, Md.

ASTRO, the National Cancer Institute (NCI) and the American Association of Physicists in Medicine (AAPM) are co-sponsoring a two-day workshop for radiation oncology professionals involved or interested in technological advances in radiation oncology research.

ASTRO, NCI and AAPM are co-sponsoring a two day workshop to assess the status and impact of advanced technologies in radiation therapy

This workshop will specifically address future research opportunities in advanced technology from both a physician and physicist perspective. At the workshop, experts in the field will present overview talks on innovative research topics such as **imaging biomarkers for planning and response, novel high-performance treatment systems, patient outcome and technology, and clinical trial designs that test the impact of technology.**

"anatomy focused" RADIOTHERAPY



"4D" Gimballed linac "VERO" by Brainlab



"3D" Built on the principles of back projected CT

“biology focused” RADIOTHERAPY

R. Jeraj, U. Wisconsin

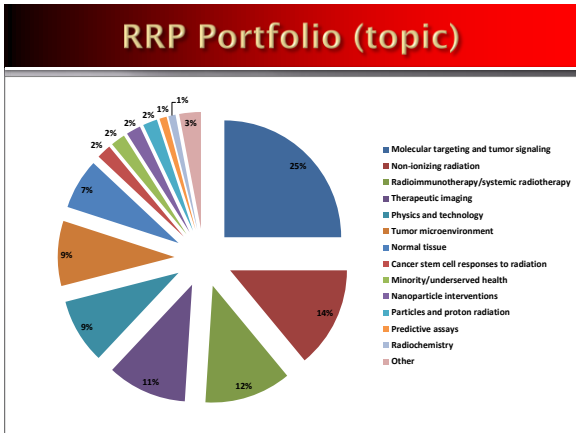
NOTE:

**PRECISE DELIVERY of radiation
Is NOT
PRECISION MEDICINE**

Emission Guided Radiation Therapy

Hypothesis: Patterning radiation dose according to imaged functional or molecular distributions will increase the TR

Confidential - Radiation Medical



National Cancer Institute

INNOVATIONS and CLINICAL TRIALS

International Journal of
Radiation Oncology
biology • physics
www.mdjonline.org

Critical Review

**Redesigning Radiotherapy Quality Assurance:
Opportunities to Develop an Efficient, Evidence-Based
System to Support Clinical Trials—Report of the National
Cancer Institute Work Group on Radiotherapy Quality
Assurance**

Four recommendations were made:

- (1) develop a tiered system for RT QA tailored to the trial objectives
 - a) general credentialing,
 - b) trial-specific credentialing, and
 - c) individual case review
- (2) establish a case QA repository;
- (3) develop an evidence base for clinical trial QA
- (4) consolidating clinical trial QA in the United States.

RCTs > Registries > CER



August 13-14, 2015

NIH Campus, Bethesda Maryland

ASTRO, the National Cancer Institute (**NCI**), and the American Association of Physicists in Medicine (**AAPM**) are co-sponsoring a two-day workshop for radiation oncology physicians and physicists focused on opportunities for radiation oncology in the era of big data.

The 2015 Big Data Workshop: Exploring Opportunities for Radiation Oncology in the Era of Big Data will provide a platform for leaders in big data projects to interact with their peers in radiation oncology research, quality assessment and clinical care. Presentations will include current big data cancer registries, safety and incident reporting systems, and other strategies that will have the greatest impact on radiation oncology research, quality assurance, safety and outcomes analysis/ CRE. Abstract submissions will be solicited for poster presentations.
