

# Current and Planned Activities of the National Council on Radiation Protection and Measurements



David A. Schauer, *Executive Director*

**Joint Coordinating Committee for Radiation Effects Research  
7<sup>th</sup> International U.S. – Russian Meeting**

Washington, DC  
September 16 - 17, 2009

**N  
|  
C  
|  
R  
|  
P**

# Key Dates in NCRP's History

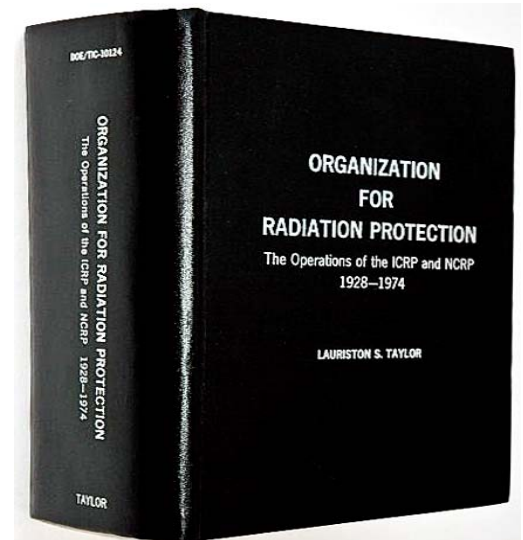
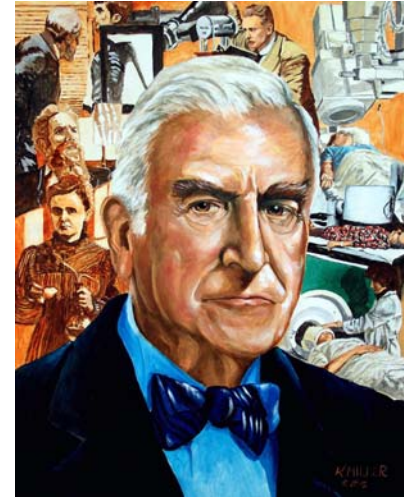


**NCRP**

**1929: U.S. Advisory Committee on X-ray and Radium Protection**

**1946: U.S. National Committee on Radiation Protection**

**1964: National Council on Radiation Protection and Measurements (NCRP) chartered by U.S. Congress (Public Law 88-376 )**



# Key Elements of NCRP's Charter Under U.S. Public Law 88-376



**N  
C  
R  
P**

## Cornerstones of role in radiation health protection:

1. *Collect and analyze* information and recommendations in the public interest about:
  - a. protection against radiation; and
  - b. radiation measurements, quantities and units.
2. *Develop* basic concepts of radiation protection;
3. *Facilitate* effective use of combined resources of organizations concerned with radiation protection; and
4. *Cooperate* with national and international governmental and private organizations; and
5. *Disseminate* the Council's work.

# Organizational & Operational Structures



## Board of Directors

(13 members including NCRP's President)

- **Approve** topics to be addressed and committee membership

## Council

(100 members elected for 6 year terms)

- **Review** reports, commentaries and statements

## Program Area Committees

(~12 members serving annual renewable terms)

- **Identify** topics to be addressed and possible funding sources
- **Suggest** committee members
- **Perform** peer reviews of draft reports prior to Council review

## Scientific Committees

(various sizes and compositions)

- **Draft** reports, commentaries and statements

# Program Area Committees



**IAEA**

- • **PAC1** - Basic criteria, epidemiology, radiobiology and risk (WF Morgan)
- **PAC2** - Operational radiation safety (DS Myers)
- **PAC3** - Nuclear and radiological safety and security (JW Poston)
- • **PAC4** - Radiation protection in medicine (JL Bushberg)
- **PAC5** – Environmental radiation and radioactive waste issues (SY Chen)
- • **PAC6** - Radiation measurements and dosimetry (RA Guilmette)

# Current NCRP Scientific Committees Working on Radiation Effects and Risk Assessment



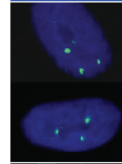
**N  
C  
R  
P**

- **Report of Scientific Committee 1-13** (to be published in 2009): *Impact of Individual Genetic Susceptibility and Previous Radiation Exposure on Radiation Risk for Astronauts*
- **Report of Scientific Committee 1-16** (to be published in 2011): *Uncertainties in the Estimation of Radiation Risks and Probability of Disease Causation*
- **Report of Scientific Committee 1-20** (to be published in 2012): *Variation in Biological Effectiveness of Photons as a Function of Energy*

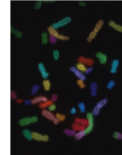
# Proceedings of 2008 Annual Meeting in *Health Physics*, Vol. 97(5), 2009, *Analysis of Biological and Human Health Impacts of Low-Dose Radiation Exposures*



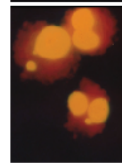
**N|C|R|P**



Forty-Fourth  
Annual Meeting Program



Low Dose and  
Low Dose-Rate Radiation  
Effects and Models



April 14–15, 2008

Bethesda North Marriott Hotel  
& Conference Center  
5701 Marinelli Road  
North Bethesda, MD 20852

**N|C|R|P**   
National Council on Radiation Protection & Measurements

# Major Planned NCRP Activity



Major report is planned on *Low Dose and Low Dose Rate Biological Effects and Implications for Human Health*

- will *incorporate* results of extensive research on low-dose biological interactions sponsored by U.S. Department of Energy and other organizations worldwide
- will provide an *extension* of recently published analyses of low-dose radiation effects in ICRP Publication 99 (2004), the French Academy of Sciences report (2005), and the U.S. National Academy of Sciences BEIR VII report (2006)

# NCRP's Strategic Initiative on Biological and Human Health Effects of Low-Dose Radiation

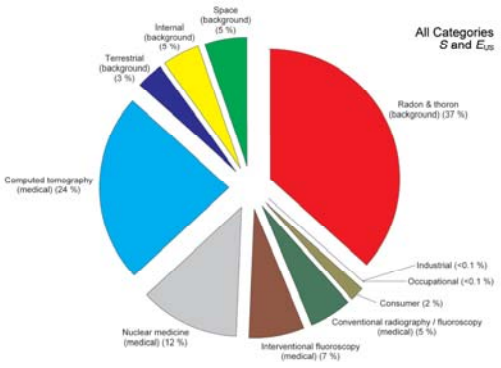


- *Primary Goal:* Prepare definitive publication during 2011 to 2016 on biological effects and potential human health implications of exposure to low dose and low dose rate radiation
- Report will contain:
  - up-to-date reviews of *laboratory and human epidemiology studies*
  - effects of *radiation quality* and *dose rate*
  - integration of results into *reliable, predictive models of human health effects* at low doses
  - *health protection* and *regulatory implications* of findings, and *effective communication* of projected risks of low dose radiation exposure

# IONIZING RADIATION EXPOSURE OF THE POPULATION OF THE UNITED STATES

## PREPUBLICATION COPY

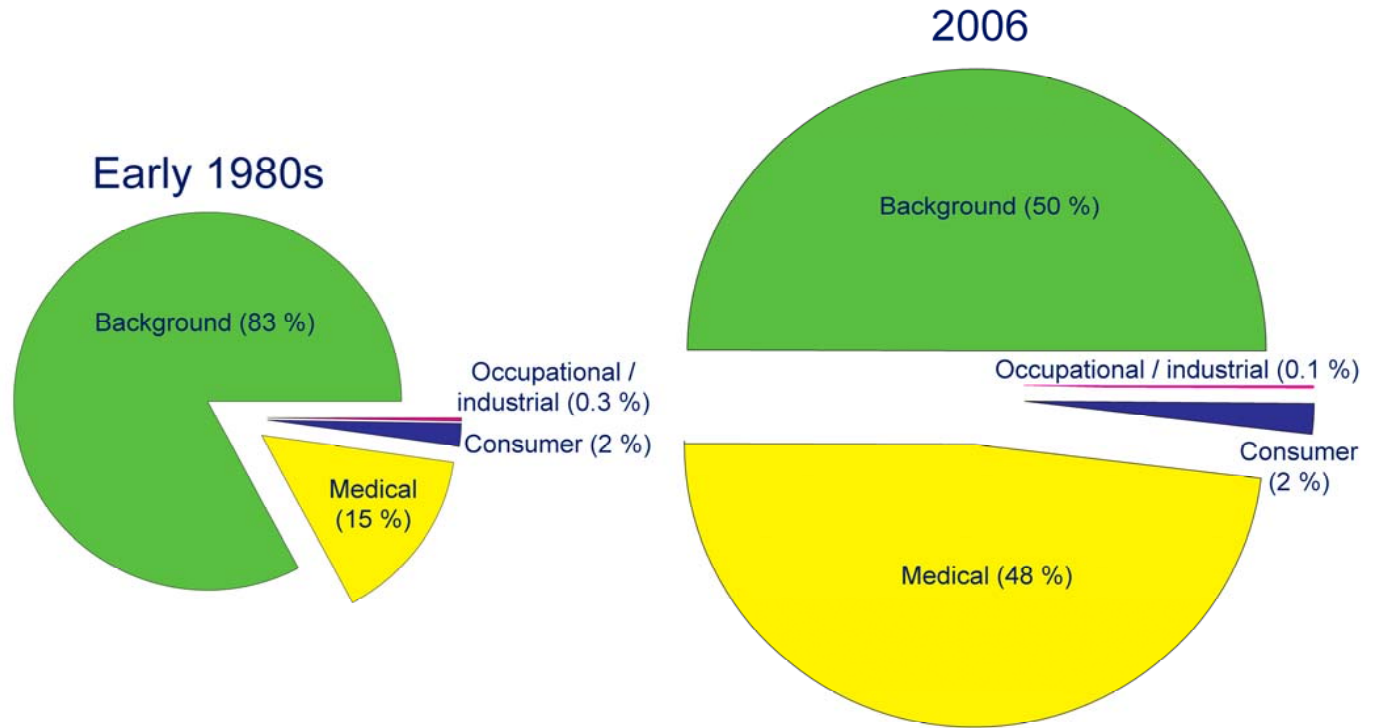
(This Report is undergoing final editing. Revisions due to style, format, or inadvertent errors may occur.)



# NCRP Report No. 160, *Ionizing Radiation Exposure of the Population of the United States*



**NCRP**



|  | Early 1980s | 2006      |
|--|-------------|-----------|
| Collective effective dose (person-Sv)                      | 835,000     | 1,870,000 |
| Effective dose per individual in the U.S. population (mSv) | 3.6         | 6.2       |

# Radiation Exposure to US Population - Medical Exposures



**ORION**

|  | Number of Procedures (millions) | %   | Collective Effective Dose (person Sv) | %   | $E_{US}$ (mSv) |
|--|---------------------------------|-----|---------------------------------------|-----|----------------|
| Computed Tomography                    | 67                              | 17  | 438,000                               | 49  | 1.5            |
| Nuclear Medicine                       | 18                              | 5   | 231,000                               | 26  | 0.8            |
| Interventional                         | 17                              | 4   | 128,000                               | 14  | 0.4            |
| Conventional Radiography & Fluoroscopy | 292                             | 74  | 99,000                                | 11  | 0.3            |
| TOTALS                                 | 426                             | 100 | 898,000                               | 100 | ~3             |

**(600 % increase)**

# Collaborative Efforts Related to Radiation Protection in Medicine



**N  
C  
R  
P  
M**

- “American College of Radiology White Paper on Radiation Dose in Medicine,” JACR 4, 272-284 (2007)
- Image Gently and Step Lightly Campaigns
- WHO Global Initiative on Radiation Safety in Health Care Settings
  - Role of **justification** in medical imaging
- American Board of Radiology Foundation: Summit 2009, “Medical Imaging: Addressing Overutilization in the Era of Healthcare Reform”
  - Justification, optimization and implementation
  - August 6-7, 2009
- Computed Tomography in Emergency Medicine: Ensuring Appropriate Use
  - Co-sponsored by AAPM, ACEP, ACR, ASER, SAEM, CDC, EPA and Landauer, Inc.
  - September 23-24, 2009

# Recent Publications and Current Scientific Committees Working on Issues Related to Radiation Dosimetry and Measurements



**IAEA**

- **Report No. 156**: *Development of a Biokinetic Model for Radionuclide-Contaminated Wounds and Procedures for Their Assessment, Dosimetry and Treatment* (2006)
- **Report No. 158**: *Uncertainties in the Measurement and Dosimetry of External Radiation* (2007)
- **Report of Scientific Committee 6-3** (to be published in 2010): *Uncertainties in Internal Radiation Dosimetry*
- **Report of Scientific Committee 6-4** (to be published in 2010): *Principles and Practices of Radiation Dose Reconstruction*

# NCRP Publications – “Disseminate”



**N  
|  
C  
|  
R  
|  
P**

- NCRP reports and current activities are described online at <http://NCRPonline.org>
- Publications can be purchased online at <http://NCRPpublications.org>
- Institutional license agreements are now available through:
  - **Knovel** (<http://www.Knovel.com>)
  - **NetLibrary** (<http://www.NetLibrary.com>)
  - **ebrary** (<http://www.ebrary.com>)

# 2010 Annual Meeting



## *Communication of Radiation Benefits and Risks in Decision Making* (Chairman, Dr. Locke, Johns Hopkins)

- Will build on topics discussed at previous NCRP annual meetings, *e.g.*,
  - Exposures from medical imaging and nuclear power
- March 8-9, 2010 at the Bethesda Hyatt