Thoughts from NCRP on Doing More With Less in Challenging Times for Radiation Sciences

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Thoughts from NCRP on Doing More With Less in Challenging Times for Radiation Sciences

- What’s NCRP (National Council on Radiation Protection and Measurements)?
- Workforce needs
- Collaboration/Cooperation
- Communications
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• What’s NCRP?
• Workforce needs
• Collaboration/Cooperation
• Communications
NCRP – A Council of 100 Radiation Professionals

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 chartered by Congress (Public Law 88-376)
Advice, Reports, Research

GUIDANCE ON RADIATION DOSE LIMITS FOR THE LENS OF THE EYE

Where Are the Radiation Professionals (WARP)?

Ruminants of NCRP Statement No. 12

January 23, 2013

Background: Since the discovery of tissue radiosensitivity in the late 1940s, sources of ionizing radiation have been employed in medicine, industry, power production, and national defense. To provide for the safe and beneficial use of these sources of radiation, the United States developed the National Council on Radiation Protection and Measurements to provide scientific advice and recommendations on the radiation protection standards and the associated research and education needs. This document describes the work of the Council in support of these efforts.

Methods: To study the decline in red blood cell radiosensitivity in the United States, the Council on Radiation Protection and Measurements was established. The Council completed a series of workshops on the topic, including this workshop on red blood cell radiosensitivity.

DOSE RECONSTRUCTION FOR THE MILLION WORKER STUDY: STATUS AND GUIDELINES

André Bouville, Richard E. Toth, John D. Beice, Jr., Harold L. Beck, Larry T. Dower, *

Keith E. Eckerman, ** Derek Hagenmeyer, *** Richard W. Leggett, ** Michael T. Moncla, **

Bruce Napier, **† Kathy H. Pyer, *** Marvin Rosenstein, **† David A. Schuerer, Jami Shenkin, ***

Daniel O. Strand, **† James L. Thompson, **† John E. Tilt, **† Craig Vodicka, **† and Cary Zeitlin, **†
Seven Program Area Committees (PACs) and Two Council Committees (CCs)

- PAC 1 - Epidemiology & Biology
- PAC 2 - Operational Radiation Safety
- PAC 3 - Security & Safety
- PAC 4 - Medicine
- PAC 5 - Environment & Waste
- PAC 6 - Dosimetry & Measurements
- PAC 7 - Risk Communication & Outreach

- CC-2 – Meeting the Needs of the Nation for Radiation Protection (WARP: Where Are the Radiation Professionals?)
14 (more or less) Active Committees Under PACs

- SC 1-24P2 – Radiation Exposures in Space/CNS Effects
- SC 1-26 – Integrating Radiation Biology and Epidemiology for Low Dose Risks
- SC 2-7 – Radiation Safety of Sealed Radioactive Sources (Report 182)
- SC 2-8 – Operational Radiation Safety Program
- SC 3-1P2 – Implementation of Guidance for Radiation Responder Dosimetry
- SC 4-5 – Radiation Protection in Dentistry
- SC 4-7 – Evaluating and Communicating Risks for Human Studies
- SC 4-8 – Improving Patient Dose Utilization in CT
- SC 4-9 – Medical Exposures of Patients in the US
- SC 4-10 – Error Prevention in Radiation Safety
- SC 4-11 – Gonadal Shielding during Abdominal & Pelvic Radiography
- SC 5-2 – Radiation Protection for NORM/TENORM
- SC 6-11 – Medical Worker Dosimetry
- SC 6-12 – Brain Dosimetry for Internal Radionuclides
Recently Completed Committees (2017-2018)

- SC 2-6 – Radiation Safety Aspects of Nanotechnology
- SC 3-1 – Guidance for Emergency Responder Dosimetry
- SC 1-25 – Recent Epidemiologic Studies and Implications for LNT
- SC 1-20 – Biological Effectiveness of Low-LET Radiations
- SC 6-9 – U.S. Radiation Workers & Nuclear Weapons Test Participants Radiation Dose Assessment
Report no. 180: Radiation Protection Guidance for the United States

Council Committee (CC)-2

K.R. Kase, Co-Chair
D.A. Cool, Co-Chair
A. Ansari
J.D. Boice, Jr.
J.T. Bushberg
L.T. Dauer
D.R. Fisher
P.A. Fleming
K.A. Higley
R.N. Hyer
W.E. Irwin

F.A. Mettler, Jr.
D.L. Miller
R.J. Preston
G.E. Woloschak
J.E. Till, Liaison
S.J. Adelstein, Consultant
R.L. Anderson, Consultant
M. Boyd, Consultant
M. Rosenstein, Staff Consultant

Thanks to NRC & CDC for financial support
Selected Scientific Committees
Conclusion:
Based on current epidemiologic data, no notably different alternative to the LNT model appears more practical and prudent for radiation protection purposes.
SC 1-24 Continuation: Radiation Exposures in Space and the Potential for CNS Effects – Phase II Report

Human Exploration Research Analog (HERA), JSC

Les Braby  Jacob Raber  Thanks to NASA for funding
SC 1-26: Approaches for Integrating Radiation Biology & Epidemiology for Enhancing Low Dose Risk Assessment

R.J. Preston, Chair
W. Rühm, Co-Chair
E.I. Azzam
S. Bouffler
M.P. Little
R.E. Shore
I. Shuryak
M.M. Weil
M. Rosenstein, Staff Consultant

Thanks to CDC for financial support
SC 2-7: Radiation Safety of Sealed Radioactive Sources

“Cradle to Grave”

K.H. Pryor, Chair
E.D. Bailey   J.W. Poston, Sr.
C. Donahue    K.L. Shingleton
J.R. Frazier   G.M. Sturchio
E.M. Goldin   J. Walkowicz
B.L. Hamrick  J. Willison
M. Littleton  J. Yusko
D.S. Myers    J.L. Thompson, Consultant
SC 3-1: (1) Guidance for Emergency Responder Dosimetry and (2) Implementation Guidance for Responder Dosimetry in an Emergency

S. V. Musolino
A. Salame-Alfie
Co-Chairs

Thanks to DHS, CDC, and NYC for financial support
Thoughts from NCRP on Doing More With Less in Challenging Times for Radiation Sciences

- What’s NCRP?
- Workforce Needs in Radiation Sciences
  - WARP
  - CC-2
- Collaboration/Cooperation
- Communications
WARP: Where are the Radiation Professionals?

June 2013 Workshop included representatives from:
Government
Industry
Academia
Medicine
Professional societies

Thanks to CDC for funding
WARP Statement Findings: US is on the verge of a severe shortfall of radiation professionals.

Recommendations:
- Expand education
- Restore and increase research funding
- Increase support for training and education
- Create a Joint Program Support Office (JPSO)
- Continue monitoring and advocacy
2016 NCRP Annual Meeting

Fifty-Second Annual Meeting Program

Meeting the Needs of the Nation for Radiation Protection

April 11–12, 2016

Hyatt Regency Bethesda
One Bethesda Metro Center
7700 Wisconsin Avenue
Bethesda, MD 20814
CC 2: Meeting the Needs of the Nation for Radiation Protection

W.D. Newhauser (Med Phys), Co-Chair
J.P. Williams (Rad Bio), Co-Chair

Writing Team Leaders:
Edward I. Bluth (Med)
Michael A. Noska (HP)
Sergei Tolmachev (Chem)
Lawrence Townsend (N Engr)
Lydia Zablotska (Epi)

Thanks to CDC for funding
CC 2: Meeting the Needs of the Nation for Radiation Protection

Current Activities

**Long-Term Goal** to ensure adequacy of domestic workforce

**Short-Term Goals**
- Conduct a robust and up-to-date review
- Basis of case for rational policy making, resource allocation, etc.
- Support advocacy efforts (appropriators, lobbyists, legislators, etc.)

**Methods**
- Publish NCRP Commentary on current status of workforce
- Organize by profession (health physics, medical physics, radiation biology, medicine, radiation epidemiology, radiation and nuclear chemistry, nuclear engineering)
Future Workforce Activities

- Support advocacy efforts, e.g., dissemination

- Study future needs (capabilities and capacities)
  - Operational (routine)
  - Strategic (emergencies, homeland security)

- Ongoing monitoring of workforce
Thoughts from NCRP on Doing More With Less in Challenging Times for Radiation Sciences

- What’s NCRP?
- Workforce needs
- Collaboration/Cooperation
  - Partnerships with other Organizations
  - Partnerships with Agencies
  - Research Partnerships
- Communications
NCRP Active Partnerships

• Image Gently Alliance
• Conference of Radiation Control Program Directors
• Health Physics Society
• Radiation Research Society

One Size Does Not Fit All...

- Thanks to question – CT helps us save kids’ lives.
- But radiation matters. So when we image, do it gently.

More is often not better. What’s the right thing to do?
• Child sizes the KV and mA.
• One scan (single phase) is often enough.
• Scan only the indicated area.

Visit www.imagely.com
Partnering with International Organizations

- Two Council Members are on the Main Commission
- NCRP is a Liaison Organization

Seven Council Members are on the U.S. Delegation to the United Nations Scientific Committees on the Effects of Atomic Radiation (UNSCEAR)

One Council Member is on the International Commission on Radiation Units and Measurements (ICRU)
Sponsors (Past & Present)
Research Collaborations: National Study of One Million U.S. Radiation Workers and Veterans

- Manhattan Project 360,000
- Atomic Veterans 115,000
- Nuclear Utility Workers 150,000
- Industrial Radiographers 115,000
- Medical & other >250,000

Funding from DOE, DOD, NRC, NASA, CDC
Thoughts from NCRP on Doing More With Less in Challenging Times for Radiation Sciences

- What’s NCRP?
- Workforce needs
- Collaboration/Cooperation
- Communications
  - Get the word out: Messaging
  - Meetings
  - Publications
Getting the Message Out: Social Media (PAC 7)

NCRPonline.org
Improved “Roll Outs”
Getting the Message Out

Overview

In May 2018, the National Council on Radiation Protection and Measurements (NCRP) published Commentary No. 27, *Implications of Recent Epidemiologic Studies for the Linear-Nonthreshold Model and Radiation Protection*.

For over 40 years, the linear-nonthreshold (LNT) dose-response model has been used to develop practical and prudent guidance on ways to protect workers and members of the public from the potential for harmful effects of ionizing radiation, specifically, from low linear-energy transfer (low-LET) radiation.
NCRP Annual Meetings

Participation in Meetings of Other Organizations
Fifty-Third Annual Meeting Program

Assessment of National Efforts in Emergency Preparedness for Nuclear Terrorism: Is There a Need for Realignment to Close Remaining Gaps?

March 6–7, 2017

Armin Ansari & Adela Salame-Alifie, Co-Chairs
Fifty-Fourth Annual Meeting Program

Radiation Protection Responsibility in Medicine

March 5–6, 2016

NCRP

D Frush
L Dauer,
Co-Chairs
2019 Annual Meeting:
April 1-2, 2019

NCRP at Ninety: Our Best Answers to Frequently Asked Questions

Fred A. Mettler, Jr., Chair, & Jerrold T. Bushberg & Richard J. Vetter, Co-Chairs
NCRP Participation in Health Physics Society Mid-year Meetings

2016 – Austin
2017 – Bethesda
2018 – Denver
2019 – San Diego

2018: Emerging Issues in Radioactive Waste Management
Partnering with CRCPD – Conference of Radiation Control Program Directors

September 23-27, 2019
Ninth International Symposium on NORM
NORM IX, 2019
Denver, Colorado
NCRP Publications

181 Reports
27 Commentaries
12 Statements
Meeting Proceedings
Named Lectures (Taylor, Sinclair, Tenforde)
Special Issue
Million Person Study

26 Peer-Reviewed Articles

I2 - The Million Person Study, Whence it Came
I4 - Relevance to NASA and Space Exploration
E1 - Leukemia Among Nuclear Power Plant Workers
E3 - Updated Mortality Analysis of the Mallinckrodt Uranium Processing Workers, 1942-2012
E4 - Sex-Specific Lung Cancer Risks among MPS Cohorts
E5 - Mortality among Atomic Veterans
E7 - Heart Disease within the Million Person Study
Summary

• NCRP chartered by US Congress to provide independent scientific advice on matters related to radiation protection and measurements. **Rely heavily on volunteer experts to accomplish the mission.**

• Numerous documents on topics such as dose to lens of the eye, emergency preparedness, dosimetry, LNT and low dose effects, space radiation, medical radiation, etc.

• Emphasis on collaboration/cooperation with partners, funding agencies.

• Recognizing importance of communications/outreach and workforce development.
Acknowledgments

- Dr. John Boice, Staff at NCRP and NCRP Council Members and Members of our PACs and SCs

THANK YOU