



Conference of Radiation Control Program Directors, Inc.

NEWSBRIEF

August 2001

CRCPD's Mission: A Partnership Dedicated to Radiation Protection

Message from Chairperson Paul J. Merges, Ph.D.

Inside



Sunrise over Anchorage

Hi CRCPDers:

Well, the summer is over and I hope each of you enjoyed it, as well as your other family members. I'm writing this *Newsbrief* article from Cape Cod, Massachusetts - a really lovely place to vacation and reduce stress.

Last week, Chair-Elect Cindy Cardwell and I represented the Conference and its members at the annual meeting of Commissioners of the Nuclear Regulatory Commission (NRC). The NRC meets with the Conference Chair and the officers of the Organization of Agreement States (OAS) - Chair Kathy Allen, Chair-Elect Bill Sinclair, and Past-Chair Ed Bailey. For the first time this year, the NRC funded the participation of the CRCPD Chair-Elect. Cindy and I are very thankful the NRC agreed to do so and hope it will continue in the future. Having the Chair-Elect present will provide continuity between these meetings for the CRCPD Board, as well as provide CRCPD additional opportunity to discuss issues with the Commissioners.

NRC Chairman Richard A. Meserve opened the meeting, which was also attended by NRC Commissioners McGaffigan, Merrifield, and Dicus. Commissioner Greta Dicus noted that the other NRC Commissioners shook hands with the CRCPD and OAS representatives, but she was the only one "hugged" by them. Cindy and my presentations have been put on the CRCPD web site so I'm not going to repeat that information herein. Also, the OAS communicates to its members by email and I assume you've already received their formal presentations by now.

So I'd like to report some observations on the meeting especially as a result of the question and answer phase of the meeting. In response to my raising the need for all the federal radiological agencies (NRC, EPA, DOE, FDA, FEMA, DOT, and DOD) to assure our nation has an adequate supply of radiological science and engineering staff, Commissioner Merrifield noted that Congress is looking into this shortage. I emphasized the need for NRC sponsored courses for the state radiation staff -

Website: www.crcpd.org

and NRC funding of travel and tuition for that training. I noted the major cuts or outright elimination of federal radiation related fellowship programs over the past 20 years, and urged that these fellowship programs be reinstated. While there was general agreement on the need for more federal resources for these programs, Commissioner Merrifield encouraged CRCPD to work with the nation's colleges and universities to seek resolution of this problem. Let's do so!

The IMPEP review program was discussed as a successful federal oversight of state regulatory efforts. On the issue of generic guidance for disposal of wastes at uranium mill sites, Chairman Meserve noted the need for long-term federal or state ownership and custodial care as problems for this disposal alternative. CRCPD's Orphan Source Pilot Program was pointed out as a successful federal-state partnership.

As a reminder, please plan ahead for our 34th Annual Meeting in Madison, Wisconsin on May 5-8, 2002. If you have suggested topics to be presented at this meeting, please let Past Chairperson Paul Schmidt or me know of them. See you there.

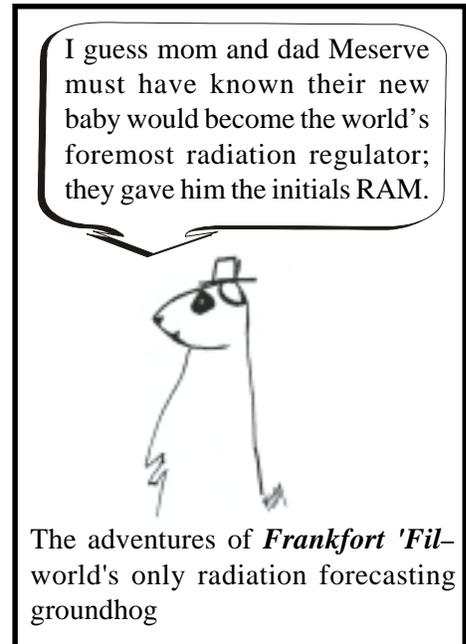


CPCPD Virtual Library



If you missed our 33rd National Conference on Radiation Control in Anchorage, or just couldn't retain all the valuable information presented, you'll be interested in registering for our CRCPD Virtual Library. Free for CRCPD members, you can view many lectures and poster sessions from this event. We partnered with DigiScript, Inc. to digitally record presentations from our National Conference and make it available on-line: audio, video, PowerPoint presentations, full transcripts, and much more can be viewed all on the same screen. It's like you were actually there!

Find information on regulatory challenges, state RCPs, and more. For example, click [here](#) to view a sample lecture by [John Villforth](#) (best viewed with Internet Explorer). To gain complete access to our new Virtual Library, visit http://www.crcpd.org/members_only.html today.



AAPM Meeting Report

By Paul Schmidt, Wisconsin Radiation Protection Section

On July 22-23, I attended the American Association of Physicists in Medicine (AAPM) annual meeting in lieu of Jill Lipoti, CRCPD liaison to AAPM, who was unable to attend. The AAPM meeting was held at the Salt Palace Convention Center in Salt Lake City, Utah with over 2,000 people in attendance.

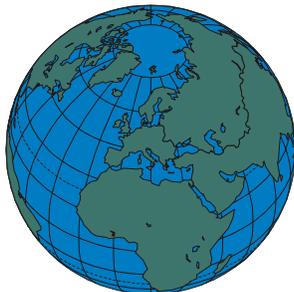
My primary purpose was to interact with a number of AAPM committees that are interested in CRCPD activities or that are active in areas of interest to CRCPD. Ultimately, I attended four committee meetings: two by invitation and two by interest. Meeting summaries are as follows:

1. International Affairs Committee: AAPM is very active on the international level. I attended this committee meeting to obtain ideas on international involvement from an organization that is already active internationally. AAPM has established an exchange scientist program that consists of surveying members to determine individual areas of expertise, assess interest in providing assistance to a foreign country and document foreign language skills. They post a list of potential 'exchange scientists' and related info on their web site so other countries with an interest in receiving training or info can see who might be interested and available. AAPM also asks members to let the main office know if they are scheduled to visit a foreign country (business or vacation) so that the main office can coordinate possible AAPM activities during the visit. Two countries with currently heightened interest in radiation protection are China and Thailand. A representative from Thailand attended the committee meeting. She reported that the Thai government is particularly interested in radiation issues and may establish a grant program to bring foreign representatives into Thailand that can provide training and expertise in a number of radiation areas, including radiation protection. This area might be worth pursuing through IAEA.

2. Legislation and Regulation Committee: This committee discussed current federal regulations of interest to the organization. Two discussion items of primary interest to CRCPD were the CARE bill and 10 CFR 35. The CARE bill (Consumer Assurance of Radiologic Excellence) pushes for state licensing/credentialing of x-ray operators for radiologic exams. An NRC representative also provided an update on 10 CFR 35. Promulgation of this new rule has become political. Currently, the 'new' 10 CFR 35 has been approved by the Commission and evaluated by the Office of Management and Budget with a list of conditions. NRC is working to address the OMB conditions and hopefully receive OMB concurrence. In addition, the Senate has added language to next fiscal year's NRC budget bill requiring that no part of the NRC budget may be used for implementation of the new 10 CFR 35. If this condition remains in the NRC budget appropriation, it could delay or terminate the new 10 CFR 35. Stay tuned.

3. Radiation Protection Committee: This committee is very interested in CRCPD activities, particularly in the area of reducing risk from high dose fluoroscopy. During the meeting, I was asked to discuss CRCPD activities in the area of fluoroscopy.

[Continued next page](#)



AAPM Continued

I mentioned the activities of the H-22 Task Force to Minimize Risk from Fluoroscopy and detailed the info packet sent to states last year. I also provided to everyone present a copy of the resolution passed at the May, 2001 CRCPD meeting in Alaska titled 'Prevention of Unnecessary Radiation Exposure to Patients from Fluoroscopy'. In addition, I asked AAPM to consider a suggested target audience for the H-22 info (initial suggestions included cardiologists, dermatologists, and others TBD). Good interaction with this committee.

The Radiation Protection Committee also discussed the proliferation of whole body computed tomography (CT) clinics in the U.S. that offer routine 'virtual physicals' and 'virtual colonoscopies' to anyone with the \$500-1,000 to pay for a whole body CT scan (usually not covered by insurance). A whole body CT scan can involve 10-15 RAD of radiation exposure and is recommended by some clinics once every six months. The committee considered but did not resolve the question "Are whole body CT scans of asymptomatic (healthy) persons considered screening?" It may be up to regulatory agencies to answer that question. FDA is very aware of and is watching this new trend.

4. Diagnostic X-ray Imaging Committee: This committee is also very interested in CRCPD activities. I repeated my presentation on the H-22 task force activities and discussed the May, 2001 CRCPD resolution on the prevention of unnecessary radiation exposure to patients from fluoroscopy.

Committee members discussed the various activities of JCAHO, AAPM and other groups to address patient injury from fluoroscopy. They concluded that no one voluntary method would reach everyone who needs education on this issue, and that some level of regulation would be beneficial. The committee discussed the possibility of CRCPD modifying the Suggested State Regulations to include training requirements for all fluoroscopic x-ray users as one regulatory option.

During my one and a half days at the meeting, I took every opportunity to thank AAPM for providing training during CRCPD annual meetings and encouraged their involvement in the 2002 meeting in Madison, Wisconsin. It is very obvious that AAPM and CRCPD share many of the same radiation concerns and mutually benefit from the active liaisons and current level of information sharing between our two organizations.



Ruth McBurney is candidate for President, HPS

Ruth McBurney, a former CRCPD Chairperson who remains active with the CRCPD, has agreed to run for the Health Physics Society (HPS) presidency. The election will be this fall. If she wins (and we certainly hope so), she will begin her term as President-Elect in June 2002, and begin serving as President in June 2003. Ruth is a highly qualified professional and will serve the HPS well, if elected. On behalf of her CRCPD family, we wish her the best of luck in this endeavor.



Illinois provides training

By Robert Owen, Ohio Bureau of Radiation Protection

At the request of the Bureau of Radiation Protection in the Ohio Department of Health (ODH), the Illinois Department of Nuclear Safety (IDNS) provided on-the-job training to two members of the Ohio staff on sealed source and device review on May 9-10, 2001. These staff had just completed the NRC SS&D workshop during the previous month.

Bob Owen, Manager of Technical Services for ODH, coordinated the effort with Gibb Vinson, Head of Materials Licensing for IDNS. The type and scope of training provided was outlined in a letter from Joe Klinger, Chief of Radioactive Materials for IDNS. In his letter Mr. Klinger recognized the tremendous amount of experience in sealed sources and devices and other technical disciplines possessed by the Agreement States; he hopes that efforts continue to foster this kind of relationship among the states.

In the letter of thanks from Roger Suppes, Chief of the Ohio Bureau of Radiation Protection, Mr. Suppes commends the Illinois program for reaching out to another state. He emphasized the fact that "such cooperative efforts among states is what is needed in a time of shrinking resources." It can truly be said that, without the help of the State of Illinois, Ohio would not be as far along in the training of these individuals.

This is indeed a success story of cooperative efforts between states that merits repeating.



Technical Electronic Product Radiation Safety Standards Committee (TEPRSSC) meets

By Kathleen Kaufman, Los Angeles County Radiation Management

On May 17, 2001 the Food & Drug Administration's (FDA) TEPRSSC met in Rockville, Maryland. The agenda included a variety of topics, as this committee provides advice to FDA on a broad range of issues, from ionizing to nonionizing. A summary of the discussions follows:

Fluoroscopic Amendments: FDA anticipates publishing proposed rules this year, and hopes the final rules would become effective sometime in 2003. You may recall that several changes to the fluoroscopic performance standards have been discussed, including a requirement for indication of cumulative time of patient exposure, and a requirement for display of air kerma rate and cumulative air kerma rate, at the operator's position.

Pediatric CT Doses: There has been an ongoing concern that many facilities may not be appropriately adjusting CT technical factors for small patients or children, which would result in unnecessary radiation exposure. Preliminary results from the NEXT study from 34 states indicates that 57 percent of 157 facilities do not make such an adjustment. The TEPRSSC voted to recommend that FDA prepare an advisory on this issue. Furthermore, the Committee voted to recommend a dose indicator display on CT systems.

TEPRSSC

Continued



Filmless (Digital) Technologies: The potential for unnecessary radiation exposure due to digital technology was discussed. Film imposes a relatively narrow imaging capability, resulting in a more narrow range of exposures. If the exposure was quite excessive, the film would simply be too dark to read. Digital technology offers a wider dynamic range, and the tendency appears to be to overexpose the patient, and simply adjust the resulting digital image. Additionally, it may be quite easy for the operator to immediately view an image, and repeat the image if it does not appear perfect. The Committee voted to recommend that FDA pursue requiring a display of patient exposures when digital radiography is used. The Committee also encouraged FDA to investigate/prepare educational programs for radiologic technologists, physicians, and medical physicists, regarding these new digital modalities.

Wireless Phones: The committee was told that the Federal Communications Commission (FCC) regulates the base stations for wireless phones, but FDA regulates the handsets in cooperation with the FCC. The issue of biologic effects is an ongoing project, and several of the various studies that have been performed were described. FDA's activities in this area include long-term animal studies, exposure assessments, test method development, cellular and animal experiments on enzyme activity, and a cooperative research program with industry. There is a cooperative research and development agreement between the FDA and the Cellular Telephone and Internet Association. FDA provides scientific and technical oversight. In summary, if there is a health effect, it is subtle. There is an October 20, 1999 "Consumer Update on Mobile Phones" available on FDA's website.



Lasers: The International Electrotechnical Commission's (IEC) amendments to their standards were approved in January 2001. Those amendments result in new hazard classification classes. Amendments are in process to harmonize our requirements with international standards.

Sunlamps: FDA had published an "Advanced Notice of Proposed Rulemaking" (ANPRM) on February 9, 1999. Based on comments from the ANPRM, FDA decided that more research data or analysis is needed. Therefore, FDA has narrowed its specific proposals to:

1. Establish the existing Recommended Exposure Schedule as part of the performance standard.
2. Use the human cancer spectrum in a manner similar to that used by the IEC.
3. Require those that make significant changes that affect performance of sunlamps or sunbeds to assume the responsibilities of manufacturers.

TEPRSSC

Continued

4. Require a simpler, easier-to-read warning label, and
5. Require warning labels in catalogues, specification sheets, and manufacturer's brochures.

The Committee encouraged FDA to work closely with the American Academy of Dermatology on this issue.

Radiographic Machines: The Committee voted in favor of requiring a post exposure technique indication, similar to what is currently required only on mammography machines. This indicator would be required following an automatic exposure control mode use, and the system would have to indicate the actual kVp and mAs used during the exposure.

The transcript of this meeting should be available on FDA's website in the near future.

My term of service on this committee has ended, as have the terms for four others. FDA needs nominations! By the end of my term, I was the sole radiation control individual, so if you know of someone you believe would be helpful to FDA, please forward your nomination to Orhan Suleiman at FDA (OHS@cdrh.fda.gov).



The Health Physics Society welcomes you

By Jeff Kotsch, Chairperson, HPS Membership Committee

Please join approximately 6,000 of your colleagues in the preeminent organization for radiation protection. The Health Physics Society (HPS) is an international scientific and professional organization whose members specialize in occupational and environmental radiation safety. The primary purpose of the Society is to support its members in the practice of their profession. The Society is active in all aspects of radiation protection including public information preparation and dissemination, education and training opportunities, and scientific information exchange.

If you are personally or professionally interested in radiation protection, you share the interests of our thousands of members in this respected international professional organization. Your participation in Society activities and interaction with the members will provide many professionally enriching opportunities. Tangible benefits of Society membership include: a subscription to the monthly Health Physics Journal (which included the quarterly Operational Radiation Safety journal) and the monthly HPS Newsletter, a copy of and your name in the annually published Radiation Protection Professional's Directory and Handbook, reduced registration fees for Society meetings, reduced fees to join HPS sections and the right to vote and hold Society offices.

There are eight categories of HPS membership: Plenary, Associate, Fellow, Student, Emeritus, Life, Section Only and Affiliate. These categories and membership

Working Group activities



ENVIRONMENTAL

E-24 Committee on Decontamination and Decommissioning

By Debra McBaugh (WA), former Chairperson

In alignment with CRCPD's strategic plan, I attended the Decommissioning Session of the Annual Meeting of the Health Physics Society in June in Cleveland, Ohio.

The Decommissioning Session ran for a full morning with presentations covering decontamination of a building contaminated with americium, MARSSIM (several), and two on decommissioning of research reactors. Not surprisingly, Eric Abelquist gave one of the presentations on MARSSIM. I gave a presentation entitled D&D and the Conference of Radiation Control Program Directors – Activities and Future Goals. For those of you unfamiliar with what's available on CRCPD's website (and that included me until I needed to do this talk!), I used much of the presentation provided there (Thank you Chuck Hardin!) with additional information on E-24's activities, especially related to our guidance document for D&D. It was a quick trip in and out (I didn't even get to see a baseball game), but worth the effort. Since many members of HPS do not know about CRCPD, it was good to let them know what we do. Several people expressed surprise at how organized and structured we were!

While CRCPD has an official HPS liaison, Earl Fordham, I will hopefully perform more "active liaisoning" with HPS, since, while I am moving off as chair of E-24 (Welcome, Dennis Zannoni), I have just been elected President Elect for the Decommissioning Section of the HPS. As a plug for that, the next HPS midyear meeting is February 17-20, 2002, in Orlando, Florida. The topic is Decommissioning and Environmental Restoration. They still need papers, so this would be another opportunity for us to be involved. (Time and money is the issue for you all, as it is for me, but sunny Florida in February is a temptation!).

E-38 Liaison-Federal Radiological Preparedness Coordination Committee (FRPCC)

By Ron Frass (KS), Liaison

The Federal Radiological Preparedness Coordinating Committee (FRPCC) met on August 1st in Washington DC at the headquarters of the Federal Emergency Management Agency (FEMA). Informational packets for the approximately 40 federal attendees included letters from Illinois and Michigan on topics of interest to state radiation control programs. Three topics from the letters were part of the discussion among the federal agency participants.

On the issue of guidance on Potassium Iodine (KI), Mr. Russell Salter, Chair of the FRPCC, will send a letter to the Food and Drug Administration (FDA) indicating the need for continued effort to complete its guidance on the use of KI to protect the thyroid gland from exposure to radioactive iodine. The Nuclear Regulatory

**Working Group
activities
continued**

Commission (NRC) is waiting on FDA's guidance before completing its policy document on use of KI.

On the issue of revised criteria for graded exercise evaluation, all participants were reminded of the August 8 deadline for comments on both new criteria and the fast breaker exercise. States who have not commented need to act quickly.

On the issue of new recommendations from the Environmental Protection Agency (EPA) concerning Protective Action Guides (PAGs) for water, EPA is continuing to review the comments it has received. A number of the comments received were negative toward the proposed guidance of four millirem per year as a water PAG.

As CRCPD Liaison to the FRPCC, I provided a list of some of the many radiation dose limits and PAGs. This generated a brisk discussion of risk analysis and risk communication. The Advisory Team on Environment, Food, and Health will work on this issue. Options may include material for public affairs as well as technical experts to use when talking to the press and the public.



The Department of Energy (DOE) requested a focused meeting of the FRPCC to consider what equipment, skills, and people each agency could bring to a radiological emergency. Currently, many of the federal response assets that remain are under DOE control. However, other members of the federal family also have assets that could be provided under the Federal Radiological Monitoring and Assessment Center (FRMAC) umbrella to assist state, tribal, and local responders.

Currently, FEMA training programs are reviewed for college credit. Depending on the course content, the courses may receive graduate or undergraduate credit. They have asked for comments from those who have taken or plan to take the courses on whether to continue this practice. You may comment through your local FEMA regions or direct to Steve Borth at Emmitsburg. Steve's email is steve.borth@fema.gov.

Other topics discussed included subcommittee reports from the: One Voice Initiative; Transportation Accidents; Training; Protective Action Guides; Exercises; Environment, Food, and Health; and Offsite Emergency Instrumentation subcommittees. The One Voice Initiative is an effort to ensure that while several federal agencies may be involved in a response, the federal community speaks with one voice to the responders and the public.

Future meetings are planned for September 19th and November 28th. When they are formally announced in the *Federal Register*, you should also receive a notice from the CRCPD OED. If you have specific issues related to federal assistance to radiological emergencies, please let me know and I will try to bring them to the FRPCC table. As your new liaison (E-38), we (and other members of the public) have a voice in a previously federal-only meeting.

GENERAL

G-20 Committee on Licensing State Designation

By Robert L. Gallagher (MA), G-20 Chairperson

The Committee on Licensing State Designation (G-20) met in Olympia, Washington, June 19 – 20, 2001 in the shadows of magnificent Mount Rainer. In attendance were members Terry Frazee, Chairperson (WA), Robert Gallagher (MA), and David Wesley (CA); participating on a conference call were advisors Marcia Howard (OH), Elizabeth Drinnon (GA), and Cardelia Maupin (NRC resource person). The goals of the committee for this meeting were to transition the chairmanship from Terry Frazee to Bob Gallagher, discuss the efforts by NRC to amend the Atomic Energy Act to include NORM/NARM, review the recent submittal from Ohio for consideration as a Full Licensing State, and update the Licensing State Criteria Document.

Cardelia provided information on NRC's NARM initiative, stating that staff are still "looking into it." The committee discussed ways of providing input to the Commission in support of this initiative, including contacting the NRC staff tasked with working on this issue and offering our comments by way of an update to previous CRCPD comments or submitting new comments from the Committee.

The committee reviewed Ohio's rules cross referenced to NRC regulations and determined that, while equivalent Ohio regulations have not been finalized in all cases, sufficient regulatory clarity is provided by a combination of Ohio's rule 3701-39-021 and Ohio's tables of values found as appendices to 3701-40. Rule 3701-39-021 incorporates 10 CFR by reference into Ohio rule and specifically extends the rule to cover NARM. Ohio rule 3701-40 is final with an effective date of July 22, 2001. G-20 approval is contingent on table values going into effect as noted. The committee voted to approach the Board of Directors with the recommendation to approve Ohio being recognized as a Full Licensing State as of July 22, 2001.

The committee then began further review of Draft 3 of the Licensing State Criteria Document. Our goal is to review the existing criteria for licensing state designation in light of the NRC's current adequacy and compatibility policy, the IMPEP process, the efforts of the National Materials Program Working Group, and the revised Criteria for an Adequate Radiation Program (CRCPD Publication 99-2). There are two significant changes from previous criteria and procedures for the designation of a Licensing State. First, the application procedures have been modified to allow the acceptance of other legally binding mechanisms in place of regulations. The second major change conforms the criteria to reflect the new guidance provided in Publication 99-2. The committee will continue its efforts to revise the document to bring the CRCPD and NRC programs into alignment for a true national materials program.

On behalf of the Committee I would like to thank Terry Frazee for hosting our meeting in Olympia, and especially for all of his efforts as the Chair of G-20. You will be missed!

**Working Group
activities
continued**

HEALING ARTS

H-3 Committee on Medical Practice

By Dennis Angelo (PA), Chairperson

H-3 held a meeting in Pittsburgh, Pennsylvania on August 18 -19, 2001, at the South West Regional Office (SWRO) of the Pennsylvania Department of Environmental Protection/Bureau of Radiation Protection (PA DEP/BRP). We began our meeting at approximately 9:00 A.M. with discussions of the suggested revisions to our draft on *Recommended Film Retention Policy for Medical Practices*. The plan is for this document to be released as a committee report. We believe that this document will satisfy the goals and objectives associated with this charge.

The committee completed discussion of the conclusions section of the draft of "Administratively Ordered Dental X-Rays." The entire document was then reviewed for clarity and substance. Upon Board approval of the peer reviewers, this document will undergo peer review.

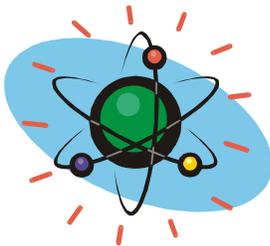
The committee hopes to present posters on both of these documents at the next Annual Meeting.

SUGGESTED STATE REGULATION

SR-6 Suggested Regulations Group 6, G: Use of Radionuclides in the Healing Arts

By David Walter (AL), Chairperson

I attended the 48th annual meeting of the Society of Nuclear Medicine in Toronto, Canada, June 23-25, 2001. I had been asked to comment on the NRC's revised Part 35 which is soon to be published. At the time of the talk, Part 35 was still at OMB for review, so SR-6 had not been able to complete Part G. And since Part G had not been finalized and approved by the Board of Directors, it was made clear that the comments given were my own opinions, or those of the SR-6 Committee, and did not represent the view of the CRCPD.



I was one of three speakers during this breakout session. Dr. Ronald Zelac spoke on behalf of the NRC, and Dr. Jeffrey Siegel spoke on behalf of the Society of Nuclear Medicine. As you can imagine, there was a great deal of interest in this topic, and an estimated 100+ people attended the breakout session.

I focused on five areas of the rule in my talk:

- Submission of required written procedures for review
 - Training and experience requirements for authorized users of unsealed radiopharmaceuticals for therapy
 - Technologist training and experience requirements
-

Working Group activities continued

- The patient release rule (35.75), and
- New reporting requirements of a dose to an embryo/fetus or nursing child.

My talk was well received, and discussions continued well past the time the meeting was adjourned. Specific areas of audience discussion included authorized user training and experience, licensee responsibility for contaminated waste, found in the solid waste stream, that is traced back to the licensee and reciprocity for mobile nuclear medicine.

With the large number of attendees (well over 3,000) this meeting is an excellent forum to discuss the relationship of radiation safety to many varied medical applications. There were many papers given on subjects involving radiation safety. Some examples of these subjects are intravascular brachytherapy, PET, fluoroscopy, technologist training and experience, and patient dosimetry. Information on new radiopharmaceuticals abounds, which gives the regulator a chance to analyze possible areas of concern, and question knowledgeable individuals about these concerns. I found this meeting to be very informative and helpful.



2002 DUES

The CRCPD Board of Directors approved the membership dues for 2002—they will remain the same as they were for 2001:

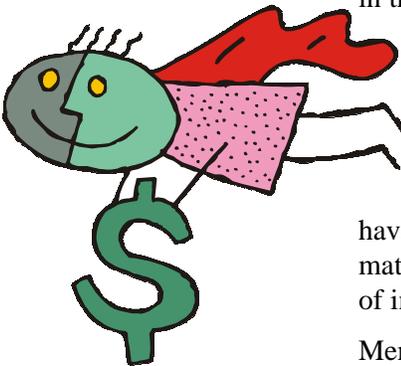
Voting	\$100	Emeritus	\$ 25
Associate	\$ 40	International	\$ 85
Affiliate	\$ 75		

The State Agency rates and category sizes also remain the same.

In September, Dues Preference Forms will be sent to each Voting Member, asking how CRCPD should invoice for the Voting Member and Associate Members in their program. There are several options:

- Invoice each Voting and Associate Member individually;
- Invoice the program for the Voting Member and a specific group of Associate Members;
- Invoice the program for an Agency membership. If a program elects to have an Agency membership, all of the program's radiation control staff can automatically become CRCPD members, and the dues rate is based on the total number of individuals in the agency.

Membership dues invoices will be mailed in December.



Retirements



Vicky Jeffs (KY), retired effective July 31, 2001.



CRCPD's 2001
 DIRECTORY OF PERSONNEL
 RESPONSIBLE FOR
 RADIOLOGICAL
 HEALTH PROGRAMS

*Directory
 changes*

Membership Updates

- Associate** - Jackson, Kurt (CA)
 Stephens, Bridget D. (AL)
 Yeager, Mark A. (SC)
- Affiliate** - Fairbent, Lynne (VA, American College of Radiology)

Directory Changes

- Page 6 - AR - Remove David Snellings and insert Vacant.
- Page 7 - CA - Remove Deborah Pellegrini and insert Vacant.
- Page 14 - FL - N. Michael Gilley-insert new bin no. A-08 and insert new zip code 32399-1710.
- Page 19 - HI -Russell Takata - delete e-mail address: <rtakata@aloha.com>.
- Page 28 - MA - insert Agreement State designation.
- Page 39 - NE -Julia Schmitt - insert new e-mail address: <julia.schmitt@hss.state.ne.us>.
- Page 44 - NM - insert new fax no.: 505 /476-3232
 Cecilia Williams-delete Community Services Bureau and replace with Radiation Control Bureau- insert new address: Harold S. Runnel Building, Room S2100, 1190 St. Francis Drive, P. O. Box 26110, Santa Fe, NM 87502-0110.
- Delete-Jerrie Moore.
- Delete-John Parker and insert vacant.
- Delete Norma Silva and insert vacant.
- William Floyd, insert new phone no.-505/476-3236.
- Jeanne-Marie Crockett - insert new phone no.- 505/476- 8531.
- Stanley Fitch - insert new phone no.- 505/476-3249.

Directory Changes

continued

- Bobby Lopez - insert new phone no.- 505/476-3219.
- Walter Medina - insert new phone no.- 505/476-3265.
- Sherry Miller - insert new phone no.- 505/476-3231.
- Margaret Roybal -insert new phone no.- 505/476-3228.
- Stephen Sanchez insert new phone no.-505/476-3264.
- Page 46 - NY State Environment Department - insert new fax no.- 518/402-8645.
- Stephen Hammond - insert new address: 625 Broadway, Albany, NY 12233-7255 - insert new phone no. - 518/402-8651, insert new fax no. - 518/402-9025.
- Paul J. Merges, Ph.D.- insert new address: 625 Broadway, Albany, NY 12233-7255 - insert new phone no.- 518/402-8605, insert new fax: - 518/402-8645
- Barbara A. Youngberg - insert new address: 625 Broadway, Albany, NY 12233-7255, insert new phone no.- 518/402-8579, insert new fax:-518/402-9065.
- Sandra Hinkel - insert new phone no.- 518/402-8579.
- John A. Kadlecek - insert new phone no.- 518/402-8579.
- John Mitchell, Timothy Rice - insert new phone no.- 518/2-8579.
- Robert Rommel - insert new phone no. 518/402-8579.
- Marus Spivak, and John Zeh insert new phone no. - 518/402-8579.
- Page 48 - NY City Health Department - Gene Miskin - insert new e-mail address <gmiskin@health.nyc.gov>.
- Page 54 - OR - Delete Ray D. Paris and insert vacant.
- Page 62 - SC -insert new fax no.: 803/545-4412.
- Pearce O'Kelley - insert new phone no.- 803/545-4403.
- James K. Peterson - insert new phone no.- 803/545-4407.
- Aaron Gantt - insert new phone no.- 803/545-4420.
- Pam Dukes insert new phone no.- 803/545-4418.





**From Otha Linton,
CRCPD's presence
in Washington**

Provided below is a press release NCRP issued on June 12, 2001, that may be of interest to *Newsbrief* readers. The full text of Report No. 136 can be ordered from the NCRP at NCRP Publications, 7910 Woodmont Avenue, Suite 800, Bethesda, Maryland 20814, 1-800-229-2652, <http://www.ncrp.com>. Provided with the release was the following contact: William M. Beckner (301)657-2652.

Radiation effects model for possible injuries reconfirmed by National Council on Radiation Protection and Measurements

A model for radiation effects known as the linear, non-threshold concept remains the best available basis for projecting possible effects to living creatures from exposures to ionizing radiation, the National Council on Radiation Protection and Measurements (NCRP) asserts in its release of a new report (NCRP Report 136) on the topic.

Observable effects of radiation exposures can be measured directly only when exposures involve relatively high doses. The concept of linearity proposes that if certain changes can be seen at an exposure of 1000 units, then a tenth as many changes happen at an exposure of 100 units, and one hundredth of those changes might be projected (but not observed directly) at an exposure of one unit.

The linear non-threshold concept is one of many approaches to extrapolating effects below observable levels. Much public policy about allowable exposures of radiation workers and the general public is derived by federal and state agencies from the conclusions of NCRP expert committees as stated in a series of scientific reports. Thus, the NCRP has repeatedly re-examined its earlier adoption of the linear, nonthreshold approach as new evidence has become available from radiobiological studies.

The current study was led for the NCRP by Dr. Arthur C. Upton, a former director of the National Cancer Institute and currently professor of environmental and community medicine at the Robert Wood Johnson Medical School, University of Medicine and Dentistry of New Jersey. The new report, NCRP Report No. 156, "Evaluation of the linear-nonthreshold dose-response model for ionizing radiation," will be released Tuesday, June 12, 2001 at the annual meeting of the Health Physics Society. Some of the members of the Committee including Dr. Upton, Dr. Kelly H. Clifton, University of Wisconsin, Dr. R. Julian Preston, U.S. Environmental Protection Agency and Dr. Roy E. Shore, New York University Medical Center will participate in a discussion of the report along with Professor Charles B. Meinhold, president of the NCRP.

The primary public health concern about human exposures to low doses of ionizing radiation is the potential causation of cancers.

When ionizing radiation from any source penetrates living cells, the energy released may pass through the cell without having any effect. The radiation may kill

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the cell, or it may damage but not kill the cell by altering the cell's DNA, thus altering the cell's normal reproduction into an abnormal or cancerous reproductive pattern.

“The significance of non-lethal mutations and chromosome aberrations is that they are implicated in the causation of cancer, a clonal disorder that may result from such changes in only one cell in the relevant organ,” the report asserts. “The types of functional genetic changes implicated thus far in carcinogenesis include the activation of oncogenes, the inactivation or loss of tumor-suppressor genes and alterations of various other growth-regulatory genetic elements (e.g., loss of apoptosis genes and mutation in DNA repair genes). The specific role that such changes may play in the cancer process remains to be fully elucidated.

The report cautions that while its conclusion is based upon evaluation of existing data, it must be taken as a very conservative presumption, rather than an assertion of direct cause and effect between the extrapolation of low level, low-energy-transfer (LET) radiation exposures and the onset of a particular form of cancer in any individual.

Humans have been exposed to ionizing radiation from cosmic rays and from radioactivity in rocks and soil since the beginning of time. Those exposures vary according to the altitude of an individual's habitat and according to the intensity of radiation in underlying soil, as well as from building materials in homes and workplaces. In addition, humans exposed to ionizing radiation also are exposed to a wide variety of other cancer-inducing sources, including tobacco, industrial chemicals and even foodstuffs. Some forms of cancer are believed to be hereditary, and others, part of the normal aging process.

“At the outset, it is noted that virtually all existing experimental and epidemiological data on the effects of sparsely ionizing (i.e., low-LET) radiation come from observations at doses far above those in which a single cell is struck, on the average, by no more than one radiation track. This means that any effects attributable to lower doses of radiation in the milli-sievert range can be estimated only by extrapolation, guided by radiation damage and repair models.

“Based upon direct experimental observations involving alpha particle microbeam experiments and theoretical considerations, it is concluded that cellular traversal by a single radiation track of any type of ionizing radiation has a nonzero probability of depositing enough energy in a critical macromolecular target, such as DNA, to injure, but not necessarily kill the cell in question. Hence, when the average number of traversals is well below one, it is concluded that the number of independently affected cells may increase as a nonthreshold function of the dose. Moreover, there is now evidence that cells in the neighborhood of those hit may also exhibit signs of radiation damage. The relevant dose-response relationships have not been determined, but if each hit cell influences a number of surrounding cells, there could be a linear dose-response until all cells are hit,” the report explains.

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Studies of cellular function have shown that some cell damage is repaired. “Several types of initial or primary DNA damage are known to result from ionizing irradiation, including single-strand breaks, nucleotide base damage and loss, DNA-protein cross-links, double-strand breaks, and multiply-damaged sites of a type of which is extremely rare in nonirradiated cells. Most such lesions in DNA are repairable to varying degrees, depending upon the repair capacity of the affected cells.”

On other occasions, exposed cells “disrepair” themselves, leaving permanent changes, among them possible cancer induction. This is more true of exposures to high-linear-energy-transfer (LET) radiations than of exposures to low-LET radiations, such as medical x-rays and much natural background radiation. “In general, low-LET radiation is appreciably less tumorigenic than high-LET radiation, and its tumorigenic effectiveness is reduced at low dose rates.

The risk also depends upon the type of cancer. “Not every type of neoplasm is inducible;” “some types actually decrease in frequency with increasing dose, and there are others that are induced in detectable numbers only at high dose levels, signifying the existence of effective or actual thresholds for their induction. For certain types of neoplasms, however, and for the life-shortening effects of all radiation-induced neoplasms combined, the data are consistent with (linear or linear-quadratic) nonthreshold relationships, although the data do not suffice to define the dose-response relationships unambiguously in the dose range below 500 millisievert. The variations among neoplasms in dose-response relationships point to differences in causal relationships which remain to be elucidated. Nevertheless, it is clear from the existing data that tumor induction *in vivo* is a multistage process in which the initial radiation-induced alteration typically occurs at a frequency exceeding that of any known radiation-induced specific locus mutation and is followed by the activation of oncogenes, inactivation or loss of tumor-suppressor genes, and other mutations and/or chromosomal abnormalities, often associated with genomic instability in the affected cells.”

In cautioning that most of its conclusions are drawn broadly from observations at high exposure levels, the NCRP committee observed that, “It is noteworthy that: (1) the dose-response curve for the overall frequency of solid cancers in the atomic bomb survivors is not inconsistent with a linear function down to a dose of 50 millisievert; (2) there is evidence suggesting that prenatal exposure to a dose of only about 10 millisievert of x-ray may suffice to increase the subsequent risk of childhood cancer; (3) analysis of the pooled data from several large cohorts of radiation workers supports the existence of a dose-dependent excess of leukemia from occupational irradiation that is similar in magnitude to the excess observed in atomic bomb survivors; (4) a dose of about 100 millisievert to the thyroid gland in childhood significantly increases the incidence of thyroid cancer later in life; and (5) highly fractionated doses of about 10 millisievert per fraction, delivered in multiple fluoroscopic examinations during the treatment of pulmonary tuberculosis with artificial pneumothorax, appear to be fully additive in their carcinogenic effects on the female breast in women exposed under the age of 50, although much less than fully additive in carcinogenic effects on the lung.”

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Ostensibly to the contrary, the report asserted, “The rates of cancer in most populations exposed to low-level radiation have not been found to be delectably increased, and that in most cases the rates have appeared to be decreased. For example, the large pooled study of radiation worker cohorts did not show positive effect for solid tumors.”



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Abbreviations, acronyms, and initialisms

Below is a list of abbreviations, acronyms, and initialisms that may appear in this issue:

CDRH	FDA's Center for Devices and Radiological Health
DOE	Department of Energy
DOT	Department of Transportation
EMF	electric and magnetic fields
EPA	Environmental Protection Agency
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
MQSA	Mammography Quality Standards Act of 1992
NEXT	Nationwide Evaluation of X-Ray Trends
NIST	National Institute of Standards and Technology
NRC	Nuclear Regulatory Commission
OED	CRCPD's Office of Executive Director
ORA	FDA's Office of Regulatory Affairs
SSR/SSRCR	Suggested State Regulations for Control of Radiation



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