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RADIATION RISK PERCEPTION AND PUBLIC INFORMATION*

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RADIATION RISK PERCEPTION AND PUBLIC INFORMATION

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We as Health Physicists face what, at many times, appears to be a hopeless task. The task simply stated is informing the public about the risks (or lack thereof) of radiation. Unfortunately, the public has perceived radiation risks to be much greater than they actually are. An example of this problem is shown in a paper by Arthur C. Upton. Three groups of people -- the League of Women Voters, students, and Business and Professional Club members -- were asked to rank 30 sources of risk according to their contribution to the number of deaths in the United States. Not surprisingly, they ranked nuclear power much higher and medical X-rays much lower than the actual values.

In addition to the perception problem, we are faced with another hurdle: health physicists as communicators. According to test results of members of the Health Physics Society (HPS), Larry Petrovic and Ray Johnson found that the communication styles of most health physicists appear to be dissimilar to those of the general public. These authors administered the Myers-Briggs Type Indicator to the HPS Baltimore-Washington Chapter. This test, a standardized test for psychological type developed by Isabel Myers, asks questions that provide a quantitative measure of our natural preferences in four areas:

1. Where our energy comes from
 - Extroversion - interacting with others
 - Introversion - inner reflection and private time
2. How we collect information
 - Sensing - using our senses to collect detailed, factual data
 - Intuition - seeing patterns and the big picture
3. How we make decisions
 - Thinking - using logical analysis
 - Feeling - using personal values
4. How we relate to the world
 - Perceiving - keeping options open and resisting closure
 - Judging - striving for conclusions to reach closure

The results of the test indicated that health physicists have different preferences than the general public, as shown in Table 1.

TABLE 1 Comparison of the Preferences of the General Public and Health Physicists

Area	Percent Preference	
	General Public	Health Physicists
<u>Source of Energy</u>		
Extroversion	75	40
Introversion	25	54
<u>Collecting Information</u>		
Sensing	75	35
Intuition	25	59
<u>Making Decisions</u>		
Thinking	50	78
Feeling	50	16
<u>Relating to the World</u>		
Perceiving	50	32
Judging	50	50

Thus, whereas health physicists typically give just facts about the risks of radiation, the public is more interested in assessing the risks from an emotional perspective. We as health physicists need to improve our communication skills by understanding the public's feelings about radiation.

But assume that you as a health physicist have the necessary skills to communicate information about radiation to the public. What do health physicists do with these tools? Nothing -- typically nothing. The fact is that most people involved in radiation protection do not get involved with public information activities. What I will attempt to do is heighten your interest in such activities. I will share information about public information activities in which I have been involved and give you suggestions for sources of information and materials.

In 1979, the health physicists at Argonne National Laboratory, with financial support from a number of sources, initiated the Radiation Effects Information Hotline (REIH), a toll-free number that people could call to get answers to their questions about radiation. The hotline started in Illinois and Indiana in April 1980 and expanded to nine states -- Michigan, Ohio, Illinois, Indiana, Kentucky, Minnesota, Tennessee, Missouri, and Iowa. Funding came from the Health Physics Society, Cincinnati Radiation Society, Midwest and East Tennessee Chapters of the Health Physic Society, American Nuclear Society, Midwest Chapter of the American Association of Physicists in Medicine, Illinois Radiological Society, and American Association of Physicists in Medicine. The hotline was operated for 14 months and received 1067 calls. Its availability was announced as public service announcements on the radio, was mentioned in newsletters of local gas and electric companies, and was the subject of a few radio talk shows where people called in and asked questions. The hotline was even discussed on a local television channel; unfortunately, the time slot was 7:30 a.m. on Sunday. The people operating the hotline found that the largest number of calls received were related to press releases and public service announcements. Thus, to do a really adequate job, we needed people not only to answer the phone but also people to stir up continued interest in the hotline.

Although the hotline was rather costly to maintain and, therefore, discontinued in July 1981, valuable lessons were learned from the experience. First of all, we learned that use of the service should be maximized (i.e., large number of calls per day) and that public service announcements must be used to "periodically reannounce" the availability of the hotline. Secondly, we discovered that the types of questions asked were very easily answered.

A second idea or suggestion for a public information activity is a booth or exhibit at an "energy fair". One activity that I was involved with was an exhibit entitled "Radiation and Energy Conservation vs. Radiation and Energy Utilization." Information was presented concerning radon in homes and radiation from natural background, nuclear power plants, and even coal-fired plants. The goal was not to frighten people but to inform them about the many sources of radiation. At a booth such as this, you should have something that will attract people's attention. A good example of such an item is a Geiger-Mueller (G-M) detector to which an audible microphone is attached. Remember, radiation is a mysterious concept. You can't feel, touch, smell, or hear it; but, with an audible detector, people can both "see and hear" radiation. It is also helpful to have a number of common items that contain radioactivity. These items include an orange Fiesta Ware plate (glazed with uranium), a radium-dial watch, fertilizer (contains uranium), lite salt (contains potassium-40), a smoke detector (contains americium-241), and a set of false teeth (glazed with uranium). These items, along with the G-M detector, should spark interest in the exhibit. Finally, prepare a one-page information sheet about radiation and, if possible, include a name, address, or phone number for additional information.

Another public information activity to consider is a speaker's bureau. Health physicists need to make themselves available to local civic and church organizations. If you need help in identifying such groups, follow the upcoming events of these groups in your local newspapers. Send a letter to these groups stating that you have speakers available to come and talk to their organizations. Keep in mind the lessons learned from

the hotline: first, the questions you get will typically be easy to answer and, secondly, letters should be sent out periodically to remind people that speakers are available.

I believe that the most important target audiences are teachers and students. There is a real advantage to educating teachers because they, in turn, will educate their students. One public information activity that I have been involved with is a one-hour graduate-level class for teachers. The course includes topics such as the nature of radiation, health physics, nuclear power plants, medical radiation, and even non-ionizing radiation. When offering such a course, structure it toward any local facilities; for example, if an accelerator or a reactor is located nearby, discuss these facilities in the course. The class could be offered at nights or over a few weekends. Since the amount of preparation to teach a class such as this is great, you need to get others to prepare lectures for various topics in the class. Even though it will take a fair amount of work the first time the course is offered, once it is established, subsequent classes will involve much less work. Another approach is to offer to come to teachers' classrooms to talk about radiation.

When you become involved in public information activities, remember that you are not alone. You should be aware that there are a number of aids that are available to you. These include films, brochures (pamphlets), and slides. An excellent film is the Atomic Industrial Forum's "Radiation Naturally," a 28-minute film that covers basic information about radiation. A number of useful brochures are also available. Many of these brochures, films, and other educational materials are outlined in handouts from the American Nuclear Society (ANS) and can be ordered from them.

A number of slides are also available to you. Two sources are the Training Resources Center and the HPS. The Training Resources slides are available for a fee. The HPS Public Information Committee put together a package of about 70 slides; these slides, along with a written description, were sent to all HPS chapters and should be available from them.

I have tried to present to you some ideas for public information activities that you and others can initiate. I have been involved with both ANS and HPS public information activities. I have chaired the Idaho ANS Section's Public Information Subcommittee for Booths and Exhibits, the HPS's Public Information Committee for two years, and the Public Information Committee of both the HPS Eastern Idaho Chapter and Midwest Chapter. Based on my involvement with a large number of public information activities, I have learned the following:

- The questions asked are typically easy to answer.
- Getting people to volunteer to speak is difficult at best.
- After you have coerced people into it, they usually enjoy it.
- You won't change the public's understanding of radiation overnight; it takes time.

What I encourage all of you to do is get actively involved with a public information project. But remember, don't overextend yourself. Choose one project and follow it through. Secondly, if you need help, get help. Don't try to do too much yourself.

If you haven't done any public information activities, you will probably find that the experience is rewarding and you will want to do more. The phrase used for the Illinois Lottery also holds true for public information: "If you don't play, you can't win!"

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