



# USRT Newsletter 2012

A collaborative effort between the University of Minnesota School of Public Health, the National Cancer Institute and the American Registry of Radiologic Technologists

## Welcome!

The U.S. Radiologic Technologists (USRT) Study continues to be the largest health study of medical radiation workers ever conducted. THANK YOU for being a part of this important research!

More than 110,000 current and former ARRT registrants—from all across the nation—have completed questionnaires for the study. More than 10,000 also provided a blood or saliva sample.

Because of YOUR participation, we are learning more each year about the relationship between ionizing radiation and health. Your extraordinary effort to continue participating in the study shows pride in your profession and a concern for the health of radiologic technologists (R.T.s) working today and in the future. Whether you are retired or still working, healthy or not, we appreciate each and every one of you!

### Thank you!



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## Coming to Your Mailbox Soon: The Fourth Survey

The study team has been busy over the past few months developing and testing questions for the Fourth Survey of USRT study participants. Thank you to the R.T.s who helped review and test the questions for this survey. Your input was extremely valuable.

The Fourth Survey includes important questions to update radiation exposure, health, and related factors. It also includes a few new questions on current issues, such as physical activity, sleep patterns, and nightshift work, which will allow us to explore how these issues relate to health in the USRT study population.

The survey will be mailed this summer to everyone who completed a questionnaire in the past. Whether you are one of the first to respond or you take some time to complete it - either way, your response is valuable!



### Has your name or address changed?

Please call the study office at 1-800-447-6466 to ensure that your information is up-to-date in time for the mailing of the Fourth Survey.

## The USRT Study from a Scientific Viewpoint

The USRT study began with a relatively simple question—*Are occupational exposures to ionizing radiation in the medical field related to cancer?* Today our work is akin to solving a puzzle with many different pieces including but not limited to ionizing radiation and cancer.

One thing we know is that the **overall health of the USRT population is good when compared to the general population.** There are diseases that have a possible association with work as a radiologic technologist in times when exposures were higher, including breast cancer, leukemia, skin cancer, cataracts, and heart disease. There are other diseases that have mixed results. To understand these findings, we need to dig deeper and look at other pieces of the puzzle.



Because of the amazing technologies that exist today to diagnose and treat patients, the **use of imaging technologies has increased more than 600 percent since 1980.** The annual per capita radiation dose from medical sources has increased dramatically from less than 20 percent to more than 50 percent of the total dose, including background. This expanding use of ionizing radiation in health care may lead to more exposure to medical workers, as well as patients. Going forward, the USRT study will explore the potential long-term impacts of these procedures, to help ensure that they are used in the most appropriate manner.

Until now, we have mostly measured occupational exposure with work history information reported in study questionnaires. **Our newly completed dose reconstruction project—an important milestone for the study—represents the first time researchers have created such a comprehensive dose reconstruction for a large group of medical radiation workers.** By combining the dose reconstruction with updated information from the upcoming fourth survey, potential associations with occupational exposure can be more closely evaluated. A natural follow-up will be the opportunity to evaluate personal medical radiation exposures in this population. (Preliminary studies indicate that this source of exposure to technologists should not be ignored.)

Cancer and the other health outcomes evaluated in the USRT study are complex diseases and we need to

consider more than just ionizing radiation. **Factors such as obesity, shiftwork, sleep patterns, and ultraviolet radiation exposure may influence the risk of radiation related disease.** Sunlight exposure, which is linked to cataracts and skin cancer, is also being evaluated as a source of vitamin D production. The USRT study is unique as a nationwide study and offers a range of potential sun exposures. Recent research from the USRT study is helping identify how geographic location may relate to vitamin D levels in the blood; this will be an important contribution to science to better understand one of many factors related to health and disease across the country.

The USRT study has generated around 100 scientific publications with subjects ranging from directly addressing the role of occupational radiation exposure in cancer and other health conditions in the USRT population to combining the information from the USRT study with other large studies to explore genetic determinants of disease. The detailed results are available on the study website at <http://radtechstudy.nci.nih.gov/>.

The findings from the USRT study are part of a large puzzle. Some parts of the puzzle are easier to solve than others, but each part is important. **The continued efforts of the technologists enrolled in the USRT study will help us continue to solve the puzzle.**

### What About Genetics?

The genetic determinants of cancer and other diseases have been a major focus of the scientific community for more than a decade. As scientists strive to understand the relationship between the environment, the genome, and disease, they are reaching out and sharing resources as no single study can address all these questions.

The USRT study has produced some **interesting results exploring how ionizing radiation and DNA repair are linked**, and how the metabolic pathways that lead to cancer may be modified by radiation.

By **joining forces with scientists around the world**, the USRT study has contributed to identifying potential regions of the genome that are of particular importance for breast and thyroid cancers.

## Working Together: R.T.s and Researchers



The USRT Study is a powerful example of how individuals—current and former R.T.s—are making a difference by working together with researchers to understand potential health risks of low dose radiation exposure in the workplace.

High levels of participation—roughly 70% for each of the three previous USRT surveys—tells us that R.T.'s are very interested in the study and have a strong commitment to the profession. Their willingness to answer questions about their work and health experiences provides the USRT researchers with the data they use to understand radiation exposure in the workplace, changes over time, and potential health effects.

Study participants who worked as an R.T. for a short time may not believe their surveys are important to the study. This could not be further from the truth. Survey data from both groups—those who worked briefly and those who worked for a longer period of time—are important. They help us understand whether differences in health may be related to working as an R.T.

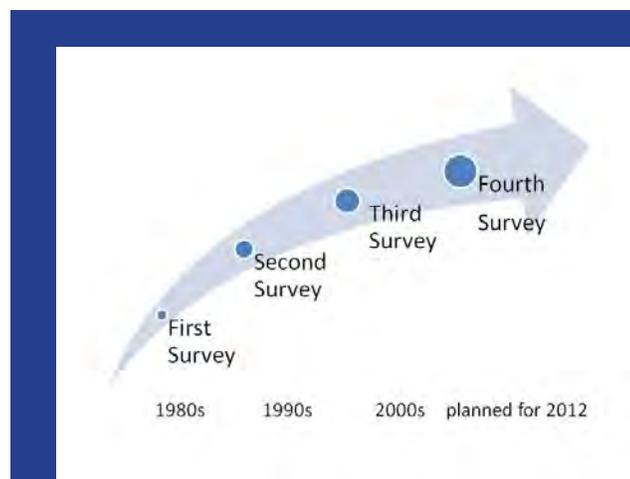
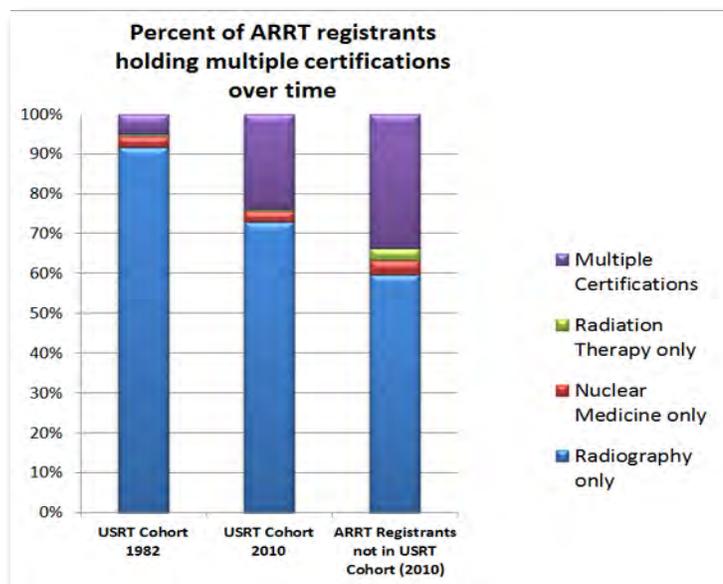
*Survey data from both groups—those who worked briefly and those who worked for a longer period of time—are important.*

**Thank you for being part of the team!**

## DID YOU KNOW?

The advances in technology and medical imaging have resulted in ARRT certification in additional primary and secondary imaging modalities. We are seeing these changes not only in the USRT study cohort, but also in the ARRT registrants who were certified after the USRT cohort was formed in the early 1980's.

These advances in the field underscore the importance of continued follow-up so we can understand how these changes may impact radiologic technologists working today and in the future.



**YOUR participation increases in value with every survey!**

## Illuminating Exposures: Fluoroscopically-guided and Radioisotope Procedures

As medicine and technology advances, the USRT study is also evolving. Knowing that fluoroscopically-guided procedures and diagnostic or therapeutic radioisotope procedures can result in higher exposures to R.T.s than traditional x-rays, these procedures will be examined more closely as part of the upcoming USRT Fourth Survey.

Participants who report on the Fourth Survey having done fluoroscopically-guided or radioisotope procedures on a regular basis will be mailed a follow-up questionnaire about these procedures.



If you performed these types of procedures, **your participation is key to understanding** the exposures and protective practices associated with fluoroscopically-guided and radioisotope procedures.

We're looking for volunteers who are interested in reviewing and testing questions regarding these procedures.

If you worked with either fluoroscopically-guided or radioisotope procedures on a regular basis, your experience could help to refine and improve these survey questions.

Please call the study office if you are interested.  
Telephone: 1-800-447-6466

## USRT Staff Member Profile Elaine McCauley, Interviewer



I've been working on the U.S. Radiologic Technologist Study at the University of Minnesota for about 10 years. During this time, I have spoken with many current and former radiologic technologists participating in the study. Having this personal connection with the participants makes me appreciate their

contributions to the study even more. Only when I started making these calls across the country did I learn that I have a Minnesota accent!

Participants often tell me how much they appreciate that this study is being done and that they are interested in what the research is showing. I'm always happy to direct them to the study web site and answer any questions. In fact, if you call our small study office, chances are you'll get me.

I listen when participants share stories about their work experience, about how different the field of radiologic technology was "in the earlier years," and concerns they may have from years of occupational radiation exposure. They take such pride in their work and express how much they enjoy(ed) it. I'm impressed by their willingness to continue to help the study and I never miss the opportunity to say thank you for all they contribute to this important research.

I've been told that research staff like me, who have phone contact with study participants, are the eyes and ears of the research team. More importantly, I believe it's the USRT study participants—whether retired or still working—who are truly the heart of the study.



*"It's the study participants—whether retired or still working—who are truly the heart of the study."*



The latest nationwide survey produces surprising results about R.T.s' long-term health.

# Has Your Job Affected Your Health?

BY MIKE BASSETT, CONTRIBUTING WRITER

*"I never really thought that being an R.T. would affect my safety or health. I respected but I didn't fear radiation."*

*"By participating in the survey I was providing information that would be useful for future generations of R.T.s."*

*"Across the board there aren't any surprising findings regarding more cancers in this population."*

These are just a few of the comments made by USRT researchers and R.T.s who were interviewed for an article about the USRT Study that appeared in the April/May 2012 issue of the American Society of Radiologic Technologists (ASRT) Scanner. In the article the USRT researchers highlight the uniqueness of the population, stating; "It probably can't be duplicated elsewhere." The fact that it is primarily women (more than 70 percent) gives the researchers an excellent opportunity to study the effects of low-level radiation exposure on diseases that affect primarily women, such as breast cancer.

Of particular interest is how many health events occur within the survey population. Since many of these events are very rare, it requires a number of years to pass for enough data to accrue. Three surveys have been completed since the early 1980s. A fourth survey is planned for 2012 that will focus on several areas, such as updating health outcomes in the study population and collecting more information on personal radiation exposures—"an area that has become quite controversial in the last few years," according to University of Minnesota lead investigator Bruce Alexander, Ph.D. The

study also plans to follow up on a subset of the R.T. population who worked with fluoroscopically-guided or radioisotope procedures that have become more common over time.

As for general conclusions about the health of R.T.s, "this study population is pretty healthy—healthier than the general population," said Dr. Alexander, "although women working in the early years of the profession had elevated risks for breast cancer." While not surprising, this fact is notable and leads the researchers to ask: In a population of mostly women, does that risk continue if we follow them throughout their lifetimes?

The participation rate for these surveys has always been "phenomenally high, averaging about 70 percent," said ARRT Executive Director Jerry Reid, Ph.D. "It reflects the high level of interest within the community in the project itself and the interest in the impact of low dose ionizing radiation." However, the researchers worry that participants who are retiring or leaving the profession will think their information is no longer useful. "So we are trying to encourage people who have retired or left the profession to continue to take the surveys. Their information is every bit as important as the information we get from those who are still working," said Dr. Alexander.

To read the entire article, go to the study website: [radtechstudy.nci.nih.gov](http://radtechstudy.nci.nih.gov) or contact the study office to request a reprint. Current ASRT members can also access the article at: [ASRT.org](http://ASRT.org)

**Be sure to watch your mail for the 2012 survey later this summer.**

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## QUICK QUIZ: USRT HISTORY



- The USRT Study began in:**  
A) 1960 B) 1926 C) 1990 D) 1980
- How many people have completed at least one survey:**  
A) 50,000 B) 110,000 C) 95,000 D) 66,000
- The study office is located in:**  
A) Minneapolis, MN B) Rockville, MD  
C) Mendota Heights, MN D) Albuquerque, NM
- USRT Study publications include research on which topics:**  
A) cancer incidence B) mortality C) genetics D) All of the above
- Who is included in the study:**  
A) working R.T.s B) retired R.T.s C) recently certified ARRT registrants  
D) both A & B

ANSWERS: 1.D, 2.B, 3.A, 4.D, 5.D



**VISIT OUR WEBSITE AT: [HTTP://RADTECHSTUDY.NCI.NIH.GOV](http://radtechstudy.nci.nih.gov)**

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