

ALASKA LEGISLATURE

HOUSE and SENATE FINANCE COMMITTEE FILES, 2005-2006 2877

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February 22, 2005

The Honorable Tom Anderson
Alaska State House of Representatives
State Capitol (MS 3100)
Juneau, AK 99801-1182

Dear Representative Anderson:

I know you are aware that many interested parties have worked for quite some time to come to agreement on legislation for the licensure of occupations relating to radiological technology, radiation therapy, and nuclear medicine technology. I'm pleased to inform you that as a result of those efforts, and the tremendous effort put forth by you and your staff, Providence Health System in Alaska supports HB 150.

I appreciate your willingness to work with Providence and all other interested parties to come up with a piece of legislation that reflects a commitment to quality improvement in this facet of Alaska's health care delivery. Thank you for giving us the opportunity to work on this legislation and our sincere appreciation goes to you for your patience.

Sincerely,

Laurie Herman
Regional Director, Government Affairs

ASHNHA Position on Draft Committee Substitute for HB 150

Prepared by: Rod Betit, President/CEO

February 2, 2006

The Alaska State Hospital and Nursing Home Association (ASHNHA) continues to support HB 150 requiring licensure of occupations relating to radiologic technology, radiation therapy, and nuclear medicine technology.

Over the last 3 years ASHNHA has worked with the sponsor and other interested parties to resolve our memberships' concerns with earlier versions of this legislation. These concerns have been addressed to our satisfaction in the latest draft Committee Substitute to HB 150.

ASHNHA's membership believes CSHB 150's goal of strengthening the quality of imaging services provided throughout the State can be achieved without creating a workforce crisis for our smaller hospitals.

We have appreciated the sponsor's willingness to reach a workable compromise on this piece of legislation.

While I am personally unable to attend the next hearing on this bill, I wanted to go on record supporting Draft CSHB 150 and urge that it be moved out of Committee at the earliest opportunity.

If ASHNHA can provide any additional information, please contact our main office at 586-1790 in Juneau.

ASHNHA Proudly Represents the Following Alaska Health Care Providers

Alaska Regional Hospital, Alaska Native Medical Center, Alaska Pioneer Home System, Bartlett Regional Hospital, Bassett Army Community Hospital, Central Peninsula General Hospital, Cordova Community Medical Center, Denali Center Nursing Home, Fairbanks Memorial Hospital, Heritage Place Nursing Home, Kakanak General Hospital, Ketchikan General Hospital, Manillaq Health Center, Mary Conrad Center, Mat-Su Regional Hospital, Mt. Edgecumbe Hospital SEARHC, Norton Sound Regional Hospital, Petersburg Medical Center, Providence Alaska Medical Center, Providence Extended Care Center, Providence Kodiak Island Medical Center, Providence Seward Medical & Care Center, Providence Valdez Medical Center, Sitka Community Hospital, South Peninsula Hospital, USAF 3rd Medical Group- Elmendorf, Wrangell Medical Center, Yukon Kuskokwim Delta Regional Hospital, Alaska Psychiatric Institute, North Star Behavioral Health System, Wildflower Court Nursing Home.





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"Uncompromising in the pursuit of access to primary care for all Alaskans"

Secretary

Re: Public Testimony for (H) Finance Committee: HB 150 Licensing Radiologic Technicians

February 13, 2006

Dear Representative Meyers and Chenault and House Finance Committee Members,

Alaska Primary Care Association (APCA) represents 24 health care organizations and 115 Community Health Centers (CHCs), as well as other safety net providers throughout Alaska. CHCs are not-for-profit safety net providers and operate on very slim margins. The great majority of our sites are located in rural and remote areas of the state.

We have been monitoring HB 150, *Licensing Radiologic Technicians*, so that our rural sites would not face hardships in securing, affording, and retaining licensed limited radiologic imagers and so that they would not be forced to transport patients to cities at a high price, causing delayed treatment and additional pain and suffering for patients.

Although we believe that licensure does not guarantee safety improvements, and that, in reality, onsite quality assurance checks of not only the *equipment* (as is already conducted by the State of Alaska) but also of the *equipment operators* would better ensure these desired safety improvements than licensure, APCA would like to thank the bill's sponsor, Representative Anderson, for reworking the language to better accommodate CHCs.

In lieu of stopping the bill altogether or reworking it to require prescribed training and onsite quality assurance checks but not licensure for limited radiologic imagers, we would like to draw your attention to a disparity in temporary permit expirations for limited radiologic imagers and ask that this incongruity be corrected.

On page 6 of the workdraft presented on Monday, February 13, please note lines 9 and 13: the disparity between the 2-year validity of the temporary permit allowed for a person with 2-years prior experience in section (c), line 13, and the 1-year validity of the temporary permit allowed for a person without prior experience in section (b), line 9. APCA requests that the word "one" in section (b) be changed to the word "two" to allow less-experienced and new hires equitable time for examination preparation and licensure attainment.

In conclusion, APCA asks that House Finance Committee Members carefully weigh the safety vs. access issues of this bill, and prior to taking a vote, address the disparity in the temporary permits discussed above by adjusting the language as requested.

Respectfully,

Shelley S. Hughes
Policy Analyst
Alaska Primary Care Association

-----Original Message-----

From: Pearce, Clyde E
Sent: Monday, January 23, 2006 9:22 AM
To: Heath_Hilyard@legis.state.ak.us
Subject: FW: Mis-Use of radiation

-----Original Message-----

From: Pearce, Clyde E
Sent: Friday, January 20, 2006 1:38 PM
To: 'djru@sphosp.com'
Subject: Mis-Use of radiation

The review of cases is not complete, but I understand you are in a hurry to obtain this information so am sending it now.

MIS-USE OF RADIATION IN ALASKA - Findings from Radiological Health Inspections.

In **Anchorage** a small clinic using untrained staff exposed patients to at least 64 times the amount of radiation required to obtain a diagnostic image, because the operator had no idea what technique to use and her supervisor advised a corrective measure that actually increased the exposure. The image was totally black due to excessive radiation, but her supervisor advised her to increase the exposure because a black image meant to her that not enough radiation was used. The operator was ignorant and her supervisor, and supposedly "trainer", was also ignorant of basic imaging concepts. There is no way to tell how much exposure the patient actually received, only that it was *at least* 64 times more than required for that first image, based on retrospective testing by the Radiological Health Program.*

A patient was over-exposed in **Petersburg** also because no applicable technique chart was available and the operator did not verify the technique was correct prior to making the exposure. This problem of guessing at techniques has been found in approximately 20% of facilities statewide.*

A facility in **Fairbanks** was found to be using the "technique by guess" approach and after the inspector conducted a repeat analysis of their discard file found that approximately half the images were repeated due to overexposure or underexposure. Underexposure causes excessive exposure to patients because although they have already been exposed they must be exposed again at a higher amount in order to achieve a diagnostic image.*

A facility in **Fairbanks** routinely exposes patients to excessive amounts of radiation because the operator does not know anatomy and positioning, resulting in repeated exposures in an attempt to visualize the true nature of the patient's anatomy. A skull exam can be performed in a way that exposes the eye lens to twenty times (20) as much radiation as the correct method, while using the same radiation exposure technique for either. Likewise, a chest x-ray performed one way causes a woman's breasts to receive

thirteen (13) to twenty-two (22) times as much radiation even though the same exact exposure technique would be used either way. Slight modifications or errors in position result in failure to demonstrate anatomical features essential to enabling a physician to make a correct diagnosis, so that a solid background knowledge of human anatomy and radiographic positioning is essential to keeping radiation exposures low. This error is not correctable using automated x-ray machines.*

Two facilities in southeast Alaska (**Craig and Petersburg**) were routinely exposing patients to between eight (8) and ten (10) times the amount of radiation required for optimum images due to mismatched films and screens. Old films with old screens require more radiation than the newer rare earth screens with green-sensitive film. However, when old technology (old screens) was mixed with new technology (green sensitive extremity film) the exposures are much higher than the old technology alone. Even using matched film and screens can cause unacceptable exposure levels when screens designed for extremity imaging (improved details, with higher dose) are used inappropriately for axial body procedures. This error is not correctable using automated x-ray machines.

A digitized x-ray machine being used in **Eagle River** was causing higher exposures than the previously used film/screen combination because the machine was not adjusted properly. Unlike film/screen systems, the over exposures were not obvious to the operator because the electronic system automatically adjusts the image no matter what amount of radiation is used. Automatic imaging (Computed radiography and digital radiography units) has the POTENTIAL to reduce exposures, however they can be operated at higher exposure levels than is required for film if not used properly.

A facility in **Juneau** has been reported to routinely use fluoroscopy to pre-position patient's prior to exposing a film, in the apparent belief that this reduces repeats due to positioning errors. This ignores the fact that the patient has already been exposed to one of the highest exposure procedures, in addition to the follow-up radiography exposures. Follow-up of this report will be conducted. This error is not correctable using automated x-ray machines.*

Approximately forty-eight (48) % of facilities are unable to provide documentation that operators are provided facility specific radiation safety instructions as required by Alaska radiation control regulations (18 AAC 85.430).

A facility in **Fairbanks** had a gassy x-ray tube, but because neither the operator nor the owner were not knowledgeable about the characteristics of gassy tubes this was missed for a prolonged period of time. Gassy tubes are incapable of producing consistent output, making high repeat exposures inevitable. This error is not correctable using automated x-ray machines.

A facility on the **Alaska Peninsula** had two operators with no formal training in radiology practicing positioning and exposure techniques by x-raying each other. This is

illegal and hazardous to the operators. This error is not correctable using automated x-ray machines.*

Approximately thirty-one (31) percent of facilities do not have a processor quality control program. Increasing exposure to the patients until a useable image is obtained often compensates for poor processing conditions. This increases repeat images, and greatly increases the exposures beyond optimum requirements. Developer that is too cold, low replacement rates, pH errors and contamination of processing tanks contribute significantly to excessive exposures. *

Approximately thirty-six (36) percent of facilities do not perform repeat analysis of spoiled images. Repeat analysis is required by federal law for mammography, and encouraged for all imaging procedures to identify problems that are correctable and indications that a machine may need repair. As a result of failure to regularly perform repeat analysis inspections reveal that old procedures previously responsible for higher exposures than necessary continue to be followed, with no reduction in exposure to patients or operators.*

Facilities in **Kodiak, Petersburg** and **Juneau** have demonstrated lack of knowledge on how to use lead shielding correctly, resulting in exposure to reproductive organs that are up to one-hundred (100) times higher than necessary for the study. Aprons and gloves significantly reduce exposures to shield areas and are required by regulations. This error is not correctable using automated x-ray machines.*

A facility in **Petersburg** documented accidental exposure of the film storage bin to visible light on four different occasions, causing a direct financial loss of approximately \$4,000. However, in an attempt to salvage some of the loss spoiled film was used which had been sensitized to light and x-rays. This reduces image contrast and can mask pathology, as well as changing the film response speed so that techniques become less predictable and exposure repeat rates increase.

A facility in **Girdwood** experienced a fogged film bin and the operator had no awareness of the cause of that problem or its implications for diagnostic accuracy.

Inappropriate technique charts are posted which causes the wrong techniques to be used and increases the number of repeat exposures in eleven (11) percent of facilities. On inspections it is not unusual to find a high frequency generator where rare earth screens are used, green sensitive film is used, and a 10:1 grid is in the table or wall mounted cassette holder. But the facility has posted a technique chart for a single-phase full wave generator using blue tungstate screens and blue sensitive film with an 8:1 grid. There is no way that the posted techniques would work with the system they are using.

Twenty seven percent (27%) of facilities conduct no radiation safety in-service training, or require continuing education for their operators. This is not currently required in the regulations yet many new developments affect even older facilities that have not changed their procedures or equipment in many years. Occupational exposure limits have been

lowered, biological effects have been found to occur at lower exposures than previously believe, and some standard procedures have been found to be ineffective. This error is not correctable using automated x-ray machines.*

Thirteen (13) facilities failed to demonstrate evidence of collimation of the x-ray beam. Biological effects are directly related to the size and volume of tissue exposed and irradiation of large areas of the body, especially body parts that extend beyond the size of the film, causes unnecessary exposure to adjacent anatomical organs (including reproductive organs). In addition, when larger amounts of tissue are irradiated scatter is increased which diminishes image contrast and diagnostic quality. A missed diagnosis can result from excessive scatter. Operators increase their exposure to scatter when more scatter is produced. This error is not corrected by using automated x-ray machines.*

Seven (7) facilities were found to be routinely holding patients during exposures instead of using immobilizing devices or a family member. For the patient, and family member, the procedure may be a one-time event, but for operators who routinely do this it is a cumulative exposure to them. The primary source of radiation exposure to operators is scatter from the patient, and the primary beam is one thousand (1000) times greater than scatter radiation at one meter from the patient. This amounts to a considerable exposure to operators.*

Numerous failures occur that are not quantifiable in terms of exposure received or excess dollars spent.

Examples include failure to post a CAUTION RADIATION sign on a door, which creates the potential for a visitor or patient to inadvertently enter the room while x-rays are present, as they seek a restroom or exit.

Those items marked with an asterisk () are important historically as they related to a study performed by the University of Minnesota which found that operators of medical x-ray machines had three times the breast cancer rate of the general public. This applied only to those who practiced up through the 1940's and into the 1950's, but no longer applies nationally due to improvements in methods and procedures. The items marked with an asterisk and found in Alaska represent those practices that have changed nationally, but persist in Alaska. In other words, while breast cancer is not shown to exist at a higher rate among operators using newer procedures (thirty-nine states require formal training of operators) in Alaska many of the same conditions that contributed to that problem in the 1950's still exists. These include using excessive x-ray beam sizes, low energy/high quantity exposure techniques, no processing quality control program, no repeat analysis, operators x-raying each other, operators routinely holding patients during exposures, inappropriate use of fluoroscopy, and lack of appropriate technique charts.*

FURTHER COMMENTS:

Every state has radiation control regulations which recognize that although there is great value in using ionizing x-rays it can be hazardous to patients and operators if not used wisely. The National Institute of Environmental Sciences has formally re-affirmed in 2005 that x-radiation is a carcinogen.

New study results, presented by continuing education offerings in Alaska in 2005, revealed that the National Institutes of Health subcommittee, Biological Effects of Ionizing Radiation (BEIR) discovered greater biological effects from x-rays than had been believed previously. This resulted in the US Nuclear Regulatory Commission, and most states, adopting lower occupational exposure limits for operators. Alaska's current Radiation Control regulations do not reflect this new research finding.

Proper use of lead shielding can reduce exposures to reproductive organs as much as 95% if used, according to NCRP Report 34, and ICRP Report 16. If not used, of course, exposures are correspondingly higher than necessary.

A nationwide study still in process is being conducted by the Radiological Health Program to evaluate four questions:

1. After implementation of the requirement for operators of medical x-ray equipment to be formally trained in your state did you experience a significant reduction of available qualified operators?
2. After implementation of the requirement for operators of medical x-ray equipment to be formally trained in your state was there an increase in the salaries (therefore cost) of imaging services due to tighter restrictions?
3. After implementation of the requirement for operators of medical x-ray equipment to be formally trained in your state were there any offices, clinics, or hospitals closed as a result of restrictions on who could operate the x-ray equipment?
4. After implementation of the requirement for operators of medical x-ray equipment to be formally trained in your state were there any instances of limited or loss of access by patients to vitally needed imaging services?

To date, every response received has indicated none of these effects occurred in a state. Two states, California and Michigan indicated that there were cost savings that resulted from increased efficiencies brought about by requiring operators to know what they were doing.

Last year there were two reports on the effects of diagnostic x-rays which indicated that a percentage of cancers were caused by diagnostic x-rays, and that diagnostic exposure levels as seen in Alaska were shown to reduce intellectual capacity of men exposed as infants in Sweden. I will look up the details on percentages and researcher if this would be helpful. I believe the percentages were that 5% of all cancers were due to diagnostic x-rays, and 1% of diagnostic x-rays resulted in cancer... two different ways of looking at the same data.

Breast cancer is now detected much earlier than was the case prior to the federal mammography regulations which began in 1994, which requires extensive formal training of operators, and it has demonstrated clearly that lives are saved because of the required higher level of competency. While it is less obvious that other healthcare imaging procedures necessarily save lives there is abundant scientific evidence that radiation is a carcinogen and a measurable portion of cancers are caused by x-rays. What is less clear is what proportion of those cancers caused by x-rays lead to disfiguring or death. National standards imposed on mammographers in Alaska are analogous to a form of "licensure" already in effect to a restricted segment of operators of x-ray machines. Federal law prohibits anyone performing this procedure who has not completed a formal two-year program, passed a national examination, and also completed forty hours of formal training and supervised clinical experience in mammography. The latent period between radiation exposure and disease make it less obvious when a cancer is caused by the radiation. However, international research has confirmed repeatedly that there is that connection. By analogy, there is no doubt that the Holocaust in Europe occurred even though most people alive today did not personally see it. Similarly, there is no doubt that radiation abuse causes cancer, even when most people do not actually see those cases. There is also no doubt that radiation abuse occurs in Alaska, and lack of formal training in how to use it correctly is a major factor in that abuse.

From: Pearce, Clyde E [mailto:Clyde_Pearce@health.state.ak.us]
Sent: Monday, January 23, 2006 1:59 PM
To: Heath Hilyard
Subject: Costs - Another perspective FYI

Concerns have been raised about the costs of healthcare and how they might rise if operators of x-ray equipment in Alaska are required to be formally trained in how to use it safely. Although these concerns have been addressed in other communications, it is important to also consider the costs of not requiring formal training of operators. The belief that implementation might negatively impact costs, while ignoring that failure to implement has cost implications needs to be addressed. In other words, whether or not HB 150 passes there are cost considerations. There is no free lunch.

In any business the public is served by offering a product or service, and in exchange that public agrees to pay for the product or service offered if they want to have it. There is an implied obligation on the part of the seller that the product or service is useful and safe. The customer expects usefulness and safety. People only eat in restaurants where they perceive the food is safe to eat. They buy clothing that they expect will be useable for a reasonable period of time. We expect the cars, computers, tires, clothes driers and other technology to operate as advertised and to do so without causing a fire or the emission of dangerous fumes in our homes. When we visit a healthcare practitioner we expect to receive care that is competent and safe. We do not wish to spend money on methods or procedures that provide no benefit.

In order for a business to provide useful and safe products there are certain actions they must take, some of which cost the seller money. There are procedures for cleaning pots and pans, to make them safe for the preparation of food. If the cook drops a steak on the floor it should not be fed to a customer, so it becomes a useless expense to the vendor. If a vehicle gas tank explodes on impact or a tire fails at high speed the vendor must make good on any sales already made to customers, and discontinue selling that product until the problem is fixed. This represents a cost to the manufacturer, and part of the cost of operation. If a manufacturer or vendor is unable or unwilling to pay the costs to provide a safe and useful product they should not be allowed to continue in that business. What usually happens is that they meet the basic costs of doing business, and pass that cost on to customers so that they continue to earn sufficient profit to stay in business. The point is, there are costs to conducting business in a safe manner, and those costs must be met whether they are paid directly by the company or indirectly through charges to the customer.

Whenever a person has medical imaging performed in order to address a healthcare concern they likewise expect that the procedure performed will be useful and safe. With radiation it is not as obvious when a procedure is neither useful nor safe, as it would be with a tire that fails or a dryer that causes a fire. Unsafe procedures may cause cancer, but usually not until years after the exposure. Unsafe procedures can cause radiation burns, cataracts, shortening of lifespan and other adverse health effects. But these all

result after some delay due to the latent nature of radiation. Also, most healthcare practitioners do not have the education or experience to recognize a radiation injury when they see one, so that even when the effects occur people tend not to see them. But the scientific literature abounds with documentation that these effects occur. And they occur at diagnostic levels of exposure. A competent physician has the training to make decisions that weigh the risks against the benefits of exposure. Usually, the benefits and necessity of receiving the procedure outweigh the risks, if we assume the risks are "normal" for that procedure. The normal risks of having a pelvis x-ray are very small, when that procedure is performed using all of the techniques and procedures available to minimize radiation dose and maximize diagnostic quality. However, when exposure doses are several times higher than optimum, or when diagnostic quality is inadequate the risks rise exponentially. At some point the risks exceed the health benefit, and the patient who is fully informed might choose not to have that test performed.

A practitioner who hires a low wage untrained person to perform a complicated procedure, presumably to keep business costs down, appears to be saving money. However, the costs of performing the procedure in a safe manner that is useful (diagnostic) are what they are. An operator who does not know how to perform the procedure safely, cannot recognize non-diagnostic images, and does not know how to correct for errors is not saving the employer money. The costs to assure reasonable safety have been bypassed by the facility, but the costs must be met. So who pays them? It is obviously the patient who pays them. When a facility cuts costs by hiring unqualified staff it is their customers who pay the price of lack of safety. The customer pays every time the procedure must be repeated at a different facility because the first x-ray exam was inadequate. The customer pays every time they are re-exposed because the operator did not use standardized procedures, exposure tables, or quality control methods to insure the procedure was performed correctly the first time. The customer pays every time pathology is missed because the images were inadequate to make a proper diagnosis. The customer pays whenever they develop a radiation related disease such as cancer or cataracts because safety was not provided. The customer pays whenever proper treatment must be delayed and pain endured longer because the procedure was not performed correctly. The customer pays when the necessary x-ray exam should expose a small part of the body, but a much larger area was exposed because the operator was afraid to restrict the beam since it might "cut-off" some of the image. The customer pays when their unborn baby is exposed to radiation unnecessarily.

And it is not just the customer who must pay. An operator of x-ray equipment who does not understand how to perform the procedures correctly is exposing him or her self to a radiological carcinogen at higher levels than if their work was in a non-radiation specialty. When the operator holds a patient without using a lead apron, or repeats exposures which increase their own exposure to scatter radiation, he or she is not acting in their own best health interests. The health of the operator should be a concern for the operator and for their family as well. Every family hopes and expects their parent(s) to work a long and productive life in whatever field they chose. Operators should not bear the costs for radiation abuse because their employer would not assume their responsibility

to insure the operator is fully knowledgeable of their own risks, or facility standards are not designed to minimize those risks to the lowest practical level.

In the end, the facility does not even escape paying the costs of radiation abuse. Informed patients share information, and some will not visit certain facilities because of their reputation. Studies have shown that the costs of requiring fully competent operators can be lower. There is potential waste in how much film, chemicals, and other supplies are used for medical imaging. Those costs increase when exposures are repeated. An x-ray tube that is misused will cost several thousand dollars to replace it, and it can be destroyed in a few exposures if misused. A facility in Alaska that documented film storage exposure incidents showed over four thousand dollars lost in wasted film just from improper use of the darkroom. Missed diagnoses and misdiagnoses are causes for legal action against facilities and staff. How many lost lawsuits does it take to make up the difference between the "cost" of hiring a person with no understanding or credentials in medical imaging versus a fully trained, tested, and experienced operator?

The bottom line is that there is a cost associated with providing safety. Customers expect safety to be an integral component of their health care. If the facility does not assume responsibility for guaranteeing safety for their customers, that cost is simply passed on directly to the customer. Unfortunately, there is no truth in packaging. Customers of medical imaging services do not usually know when responsibility for their safety has been passed directly to them. Customers of medical imaging services do not know how to even evaluate the safety of the procedures they have. This makes it a moral issue, when the customer is in no position to evaluate their risks it is an essential responsibility of the provider to take those steps necessary to protect their customers, that is, patients. It is unethical to shift that burden to patients based on their ignorance of the principle of caveat emptor in medical imaging.

If the provider of health care products or services fails to take that responsibility their services represent fraud. If the provider fails to act responsibly when their services have such profound potential health risks, it becomes necessary for some other entity to step in to advocate for the public. That entity in the case of HB 150 is state government.



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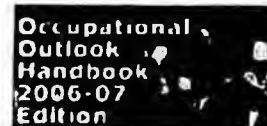
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Radiologic Technologists and Technicians

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SIGNIFICANT POINTS

- Job opportunities are expected to be favorable; some employers report difficulty hiring sufficient numbers of radiologic technologists and technicians.
- Formal training programs in radiography range in length from 1 to 4 years and lead to a certificate, an associate degree, or a bachelor's degree.
- Although hospitals will remain the primary employer, a greater number of new jobs will be found in physicians' offices and diagnostic imaging centers.

NATURE OF THE WORK

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Radiologic technologists and technicians take x rays and administer nonradioactive materials into patients' bloodstreams for diagnostic purposes. Some specialize in diagnostic imaging technologies, such as computerized tomography (CT) and magnetic resonance imaging (MRI).

In addition to radiologic technologists and technicians, others who conduct diagnostic imaging procedures include cardiovascular technologists and technicians, diagnostic medical sonographers, and nuclear medicine technologists. (Each is discussed elsewhere in the *Handbook*.)

Occupations:

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Radiologic technologists and technicians, also referred to as *radiographers*, produce x-ray films (radiographs) of parts of the human body for use in diagnosing medical problems. They prepare patients for radiologic examinations by explaining the procedure, removing articles such as jewelry, through which x rays cannot pass, and positioning patients so that the parts of the body can be appropriately radiographed. To prevent unnecessary exposure to radiation, these workers surround the exposed area with radiation protection devices, such as lead shields, or limit the size of the x-ray beam. Radiographers position radiographic equipment at the correct angle and height over the appropriate area of a patient's body. Using instruments similar to a measuring tape, they may measure the thickness of the section to be radiographed and set controls on the x-ray machine to produce radiographs of the appropriate density, detail, and contrast. They place the x-ray film under the part of the patient's body to be examined and make the exposure. They then remove the film and develop it.

Experienced radiographers may perform more complex imaging procedures. For fluoroscopies, radiographers prepare a solution of contrast medium for the patient to drink, allowing the radiologist (a physician who interprets radiographs) to see soft tissues in the body. Some radiographers, called *CT technologists*, operate CT scanners to produce cross-sectional images of patients. Radiographers who operate machines that use strong magnets and radio waves, rather than radiation, to create an image are called *MRI technologists*.

Radiologic technologists and technicians must follow physicians' orders precisely and conform to regulations concerning the use of radiation to protect themselves, their patients, and their coworkers from unnecessary exposure.

In addition to preparing patients and operating equipment, radiologic technologists and technicians keep patient records and adjust and maintain equipment. They also may prepare work schedules, evaluate purchases of equipment, or manage a radiology department.

WORKING CONDITIONS

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Most full-time radiologic technologists and technicians work about 40 hours a week. They may, however, have evening, weekend, or on-call hours. Opportunities for part-time and shift work also are available.

Physical stamina is important, because technologists and technicians are on their feet for long periods and may lift or turn disabled patients. Technologists and technicians work at diagnostic machines,

but also may perform some procedures at patients' bedsides. Some travel to patients in large vans equipped with sophisticated diagnostic equipment.

Although radiation hazards exist in this occupation, they are minimized by the use of lead aprons, gloves, and other shielding devices, as well as by instruments monitoring exposure to radiation. Technologists and technicians wear badges measuring radiation levels in the radiation area, and detailed records are kept on their cumulative lifetime dose.

TRAINING, OTHER QUALIFICATIONS, AND ADVANCEMENT

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Preparation for this profession is offered in hospitals, colleges and universities, vocational-technical institutes, and the U.S. Armed Forces. Hospitals, which employ most radiologic technologists and technicians, prefer to hire those with formal training.

Formal training programs in radiography range in length from 1 to 4 years and lead to a certificate, an associate degree, or a bachelor's degree. Two-year associate degree programs are most prevalent.

Some 1-year certificate programs are available for experienced radiographers or individuals from other health occupations, such as medical technologists and registered nurses, who want to change fields or specialize in CT or MRI. A bachelor's or master's degree in one of the radiologic technologies is desirable for supervisory, administrative, or teaching positions.

The Joint Review Committee on Education in Radiologic Technology accredits most formal training programs for the field. The committee accredited 606 radiography programs in 2005. Radiography programs require, at a minimum, a high school diploma or the equivalent. High school courses in mathematics, physics, chemistry, and biology are helpful. The programs provide both classroom and clinical instruction in anatomy and physiology, patient care procedures, radiation physics, radiation protection, principles of imaging, medical terminology, positioning of patients, medical ethics, radiobiology, and pathology.

Federal legislation protects the public from the hazards of unnecessary exposure to medical and dental radiation by ensuring that operators of radiologic equipment are properly trained. Under this legislation, the Federal Government sets voluntary standards that the States may use for accrediting training programs and certifying individuals who engage in medical or dental radiography.

In 2005, 38 States certified radiologic technologists and technicians.

Certification, which is voluntary, is offered by the American Registry of Radiologic Technologists. To be eligible for certification, technologists generally must graduate from an accredited program and pass an examination. Many employers prefer to hire certified radiographers. To be recertified, radiographers must complete 24 hours of continuing education every two years.

Radiologic technologists and technicians should be sensitive to patients' physical and psychological needs. They must pay attention to detail, follow instructions, and work as part of a team. In addition, operating complicated equipment requires mechanical ability and manual dexterity.

With experience and additional training, staff technologists may become specialists, performing CT scanning, angiography, and magnetic resonance imaging. Experienced technologists also may be promoted to supervisor, chief radiologic technologist, and, ultimately, department administrator or director. Depending on the institution, courses or a master's degree in business or health administration may be necessary for the director's position. Some technologists progress by leaving the occupation to become instructors or directors in radiologic technology programs; others take jobs as sales representatives or instructors with equipment manufacturers.

EMPLOYMENT

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Radiologic technologists and technicians held about 182,000 jobs in 2004. More than half of all jobs were in hospitals. Most of the rest were in offices of physicians; medical and diagnostic laboratories, including diagnostic imaging centers; and outpatient care centers.

JOB OUTLOOK

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Job opportunities are expected to be favorable. Some employers report difficulty hiring sufficient numbers of radiologic technologists and technicians. Imbalances between the demand for, and supply of, radiologic technologists and technicians should spur efforts to attract and retain qualified workers, such as improved compensation and working conditions. Radiologic technologists who also are experienced in more complex diagnostic imaging procedures, such as CT and MRI, will have better employment opportunities, brought about as employers seek to control costs by using multiskilled employees.

Employment of radiologic technologists and technicians is expected to **grow faster than the average** for all occupations through

2014, as the population grows and ages, increasing the demand for diagnostic imaging. Although healthcare providers are enthusiastic about the clinical benefits of new technologies, the extent to which they are adopted depends largely on cost and reimbursement considerations. For example, digital imaging technology can improve the quality of the images and the efficiency of the procedure, but remains expensive. Some promising new technologies may not come into widespread use because they are too expensive and third-party payers may not be willing to pay for their use.

Hospitals will remain the principal employer of radiologic technologists and technicians. However, a greater number of new jobs will be found in offices of physicians and diagnostic imaging centers. Health facilities such as these are expected to grow rapidly through 2014, due to the strong shift toward outpatient care, encouraged by third-party payers and made possible by technological advances that permit more procedures to be performed outside the hospital. Some job openings also will arise from the need to replace technologists and technicians who leave the occupation.

EARNINGS

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Median annual earnings of radiologic technologists and technicians were \$43,350 in May 2004. The middle 50 percent earned between \$36,170 and \$52,430. The lowest 10 percent earned less than \$30,020, and the highest 10 percent earned more than \$60,210. Median annual earnings in the industries employing the largest numbers of radiologic technologists and technicians in May 2004 were:

Medical and diagnostic laboratories	\$46,620
General medical and surgical hospitals	43,960
Offices of physicians	40,290

RELATED OCCUPATIONS

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Radiologic technologists and technicians operate sophisticated equipment to help physicians, dentists, and other health practitioners diagnose and treat patients. Workers in related occupations include **cardiovascular technologists and technicians, clinical laboratory technologists and technicians, diagnostic medical sonographers, nuclear medicine technologists, radiation therapists, and respiratory therapists.**

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For career information, send a stamped, self-addressed business-size envelope with your request to:

- American Society of Radiologic Technologists, 15000 Central Ave. S.E., Albuquerque, NM 87123-3917. Internet: <http://www.asrt.org>

For the current list of accredited education programs in radiography, write to:

- Joint Review Committee on Education in Radiologic Technology, 20 N. Wacker Dr., Suite 2850, Chicago, IL 60606-3182. Internet: <http://www.jrcert.org>

For information on certification, contact:

- American Registry of Radiologic Technologists, 1255 Northland Dr., St. Paul, MN 55120-1155. Internet: <http://www.arrt.org>

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Suggested citation: Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2006-07 Edition*, Radiologic Technologists and Technicians, on the Internet at <http://www.bls.gov/oco/ocos105.htm> (visited January 30, 2006).

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United States Office of Personnel
Management

Operating Manual



Qualification Standards for General Schedule Positions

Individual Occupational Requirements for

GS-647: Diagnostic Radiologic Technologist Series

The text below is extracted verbatim from Section IV-B of the Operating Manual for Qualification Standards for General Schedule Positions (p. IV-B-105), but contains minor edits to conform to web-page requirements.

Use these individual occupational requirements in conjunction with the "Group Coverage Qualification Standard for Technical and Medical Support Positions."

NOTE: Public Law 97-35 requires that persons who administer radiologic procedures meet the credentialing standards in 42 CFR Part 75. Essentially, they must (1) have successfully completed an educational program that meets or exceeds the standards described in that regulation, and is accredited by an organization recognized by the Department of Education, and (2) be certified as radiographers in their field. The following meet these requirements:

- (1) Persons employed by the Federal Government as radiologic personnel prior to the effective date of the regulation (January 13, 1986) who show evidence of current or fully satisfactory performance or certification of such from a licensed practitioner such as a doctor of medicine, osteopathy, dentistry, podiatry, or chiropractic who prescribes radiologic procedures to others.
- (2) Persons first employed by the Federal Government as radiologic personnel after the effective date of the regulation who
 - (a) received training from institutions in a State or foreign jurisdiction that did not accredit training in that particular field at the time of graduation, or
 - (b) practiced in a State or foreign jurisdiction that did not license that particular field or did not allow special eligibility to take a licensure examination for those who did

not graduate from an accredited educational program, provided that such persons show evidence of training, experience, and competence as determined by OPM or the employing agency.

All applicants, however, must meet the requirements below.

Specialized Experience (for positions at GS-4 and above): Experience in the operation of diagnostic radiology equipment under the direction of radiologists or other medical officers to produce radiographic studies used in medical diagnosis and treatment.

OR

Education and Training: Qualifying educational programs for radiography and radiation therapy technology are available in accredited colleges, universities, hospitals, medical schools, or postsecondary technical or vocational schools. Education or training from programs based in hospitals must have been from those hospitals that were accredited at the time of the education or training by the Joint Commission on Accreditation of Hospitals or by the American Osteopathic Association.

For GS-3: Successful completion of (a) 1 year of study with at least 6 semester hours in any combination of the following: anatomy, biology, mathematics, chemistry, radiation physics, physiology, pathology, medical terminology, or related courses, or (b) a course for medical technicians, hospital corpsmen, medical service specialists, or hospital training obtained in a training program given by the Armed Forces or the U.S. Maritime Service under close medical and professional supervision.

For GS-4: Successful completion of a full-time training course of at least 12 months' duration in a post-high school radiography program.

For GS-5: Successful completion of a full-time training course of at least 24 months' duration in a post-high school radiography program.

Successful completion of a course for medical radiologic technicians in the Armed Forces is qualifying on a month-for-month basis up to the 1 year of specialized experience required for GS-5.

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United States Office of Personnel
Management

Operating Manual



Qualification Standards for General Schedule Positions

Individual Occupational Requirements for

GS-648: Therapeutic Radiologic Technologist Series

The text below is extracted verbatim from Section IV-B of the Operating Manual for Qualification Standards for General Schedule Positions (p. IV-B-106), but contains minor edits to conform to web-page requirements.

Use these individual occupational requirements in conjunction with the "Group Coverage Qualification Standard for Technical and Medical Support Positions."

NOTE: Public Law 97-35 requires that persons who administer radiologic procedures meet the credentialing standards in 42 CFR Part 75. Essentially, they must (1) have successfully completed an educational program that meets or exceeds the standards described in that regulation, and is accredited by an organization recognized by the Department of Education, and (2) be certified as radiographers in their field. The following meet these requirements:

- (1) Persons employed by the Federal Government as radiologic personnel prior to the effective date of the regulation (January 13, 1986) who show evidence of current or fully satisfactory performance or certification of such from a licensed practitioner such as a doctor of medicine, osteopathy, dentistry, podiatry, or chiropractic who prescribes radiologic procedures to others.
- (2) Persons first employed by the Federal Government as radiologic personnel after the effective date of the regulation who (a) received training from institutions in a State or foreign jurisdiction that did not accredit training in that particular field at the time of graduation, or (b) practiced in a State or foreign jurisdiction that did not license that particular field or did not allow special eligibility to take a licensure examination for those who did

not graduate from an accredited educational program, provided that such persons show evidence of training, experience, and competence as determined by OPM or the employing agency.

All applicants, however, must meet the requirements below.

Specialized Experience (for positions at GS-4 and above): Experience in the operation of therapeutic radiology equipment under the direction of radiotherapists or other medical officers.

OR

Education and Training: Qualifying educational programs for radiography and radiation therapy technology are available in accredited colleges, universities, hospitals, medical schools, or postsecondary technical or vocational schools. Education or training from programs based in hospitals must have been from those hospitals that were accredited at the time of the education or training by the Joint Commission on Accreditation of Hospitals or by the American Osteopathic Association.

For GS-3: Successful completion of (a) 1 year of study with at least 6 semester hours in any combination of the following: anatomy, biology, mathematics, chemistry, radiation physics, physiology, pathology, medical terminology, or related courses, or (b) a course for medical technicians, hospital corpsmen, medical service specialists, or hospital training obtained in a training program given by the Armed Forces or the U.S. Maritime Service under close medical and professional supervision.

For GS-4: Successful completion of a full-time training course of at least 12 months' duration in a post-high school radiation therapy technology program.

For GS-5: Successful completion of the following type of education or training qualifies for the GS-5 level: (a) a full-time training course in radiation therapy technology of at least 24 months' duration in a post-high school program (may be a 2-year junior college or a 2-year certificate program); or (b) a full-time course of study in radiation therapy technology of at least 12 months' duration in a post-high school program. (Applicants qualifying under (b) must have entered the 1-year certificate program upon completion of a radiography program, a registered nurse program, or upon completion of equivalent course work or training that was accepted as a prerequisite for entry into the radiation therapy technology program); or (c) a 4-year baccalaureate degree program in radiologic technology.

Successful completion of a course for therapeutic radiologic technicians in the Armed Forces is qualifying on a month-for-month basis up to the 1 year of specialized experience required for GS-5.

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Alaska State Medical Association

4107 Laurel Street • Anchorage, Alaska 99508 • (907) 562-0304 • (907) 561-2063 (fax)

April 4, 2005

Honorable Leail McGuire
Alaska House of Representatives
State Capitol, Juneau, AK 99801

Re: HB 150, Licensure of Radiologic Technologists

Dear Representative McGuire:

The Alaska State Medical Association represents physicians statewide and is primarily concerned with the quality of healthcare Alaskans receive. ASMA has a tradition of supporting legislation that improves the safety and quality of medical care available in the state.

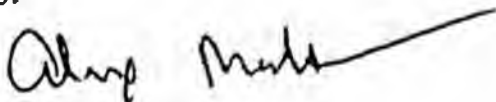
HB 150 provides for licensure of radiologic technicians by completion of a new training program. ASMA understands that better training could improve healthcare quality in some instances. Still, we have heard from doctors across the state that the legislation would likely reduce access to x-rays in many clinics, making it more difficult to diagnose certain ill patients. ASMA is concerned that overall, the unintended consequences of HB 150 could outweigh the potential benefits.

Historically, small or rural clinics have trained their staffs to take limited types of uncomplicated x-rays. X-ray volume in these practices is often low, in many cases insufficient to justify the cost and time needed to train technologists as proposed. Some practices will stop offering x-rays. This will make it more difficult for rural clinicians to "rule-out" serious conditions such as pneumonia or hip fractures. Time and costs for medical treatment in larger cities could also increase.

Please remember that doctors are already legally responsible for their employees' acts and are quite motivated to ensure their staffs provide safe, high-quality care. ASMA is not aware of any Alaskan physicians who have been found liable for bad outcomes related to unsafe or low quality x-rays.

A preferable legislative solution would be to provide a registration system (rather than licensure) for those technicians taking x-rays who are employed by physicians. This would still allow for State oversight, yet not lead small and rural clinics to reduce x-ray services. For better or worse, Alaska is different than other states.

Sincerely,



Alex Malter, MD, MPH
Immediate Past President

cc: House Judiciary Committee Members

(PHONE 745-1763)

William W. Resinger, M.D.
 P.O. Box 839
 Palmer, AK 99645

~~March 30, 2005~~ 2/13/06 - (www)

Testimony regarding HB 150

FINANCE - (www)

To: The House Judiciary Committee
 Alaska Legislature
 Juneau, AK

I am a radiologist who has practiced in Alaska since 1984. I wish to speak in support of House Bill 150.

My years of experience in radiology have given me insight into the usefulness and the risks of medical imaging. There is always a balance between the benefits and the risks of employing ionizing radiation for medical diagnosis. Education and experience are needed to maintain this balance.

Safely producing diagnostically useful images requires knowledge of such subjects as radiation protection, anatomy, positioning, exposure factors, indications for the exam, and function of the radiographic equipment. A "limited radiographic imager" described in the bill should have the basic training and experience which the bill proposes. HB 150 is not designed to burden medical providers unnecessarily, but rather to assure that minimum standards of safety and quality are met.

As a radiologist, I would not consider myself to be the most appropriate person to train or supervise medical personnel in modern medical therapy or surgery. Likewise, while I realize that many specialists are very competent radiographically in their discipline, I would not expect that physicians in general would be the most expert in training or supervising medical imagers. I am aware that humility is not a defining characteristic of my profession, but I would suggest that the colleagues I have admired most are those who understood their limits, staying within their sphere of expertise and refraining from other areas.

My pastor often reminds me that a "blind spot" is just what it says, a problem which one cannot see. This analogy is appropriate to radiology which is a very visual specialty. If I miss an abnormality on a radiograph, that finding becomes a "blind spot" for me. Radiographic diagnosis requires visual perception, even when viewing the best quality image or the most uncomplicated image.

Radiologists are constantly fine tuning their perceptive skills in order to reduce missed diagnoses or misinterpretations. In our practice my radiologist partners have detected my "blind spots" and I have done the same for them. I am not demeaning other physicians, but, as part of my day to day work, I have occasionally found abnormalities missed on radiographs performed in remote areas or offices. Sometimes the problem lies in the quality of the images. Even the simplest image of a finger can demonstrate a subtle abnormality which suggests a serious systemic disease, if the quality is sufficient.

In many aspects of medicine we now required to comply with national standards, such as the production and interpretation of mammograms. I know personally that compliance can be burdensome, but when the criteria are reasonable I accept the extra effort necessary to improve the standard of care.

I have been told that 41 other states already have provisions similar to HB 150 enacted into law. So far as I can see the proposed requirements are reasonable and they should result in a beneficial effect. I believe that this bill will help to reduce "blind spots" in Alaska's medical imaging community.

William W. Resinger, MD



The Web Site of The Sacramento Bee

This story is taken from [Politics](#) at [sacbee.com](#).

Limiting X-ray exposure

Medical X-ray toxicity is a hot topic among scientists. Assemblywoman Jenny Oropeza hopes her legislation can reduce unnecessary radiation for patients.

By Edie Lau -- Bee Science Writer

Published 2:15 am PST Saturday, December 24, 2005

One in a series of reports on new laws that take effect in the new year.

Her bout with cancer last year caused Assemblywoman Jenny Oropeza to think about the many things that damage cells in the body. Her exploration led her to something that many people think of as strictly helpful, not harmful, to their health: medical X-rays.

"Virtually everybody gets X-rays," Oropeza said. "And you know, we don't really give it a thought."

As a California lawmaker, Oropeza is in a position to try to change that. The Long Beach Democrat has taken what she hopes is a first step with the passage this year of Assembly Bill 929, the California Radiation Exposure Information Act.

The law, which takes effect Jan. 1, requires the state Department of Health Services to develop mandatory quality-assurance standards for all radiological equipment in California to ensure the lowest possible dose of radiation without sacrificing image quality.

The issue of medical X-ray toxicity was a hot topic in science circles in 2005. Early in the year, the National Toxicology Program - a part of the National Institute on Environmental Health Sciences - announced it had added X-radiation and gamma radiation to the nation's official list of known human carcinogens.

In June, the National Research Council completed a five-year study of the biological effects of exposure to low levels of ionizing radiation.

The study found that even the smallest exposure is likely to cause a small increase in health risk to humans.

Oropeza and her staff in the Assembly looked into the subject. They discovered that while the state has quality-assurance guidelines for users of medical radiological equipment, abiding by the standards wasn't required.

The one exception is mammography. A 1992 federal law set mandatory standards for

mammography involving credentialing of personnel and equipment maintenance.

So, while the tools of mammography must be inspected annually, other radiological equipment is examined by the state much less frequently.

According to Kevin Reilly, deputy director of prevention services at the state health department, equipment used in hospitals is considered by state law to be the highest priority. It must be inspected once every three years.

Equipment considered "medium priority" must be inspected every 4 1/4 years. Dental equipment is in its own category. Sources of radiation used in dentistry must be screened for defects by mail at least once every five years on average. Half of the dental equipment must be physically inspected at least once every six years on average.

While scientists and lawmakers are paying more attention to the potential dark side of medical radiology, no one questions that the tools can and do save lives.

Charles Meyers will speak to that. Meyers had a computed tomography (CT) scan of his left foot on Tuesday after he fell off a ladder and ended up at Mercy General Hospital's emergency room with what he suspected was a broken heel.

It was the second CT scan he's had recently, and he didn't worry for a moment about the radiation exposure.

"Two years ago, I had a CT scan on my lungs," said Meyers, a former Sacramento resident who was back in town visiting a friend. "Without it, I wouldn't have known I had clots in my lungs. It was definitely a life-saver."

Oropeza said her concern is not procedures that are medically necessary. Her target is the stuff that's unnecessary.

An example, she said, are full-body CT scans. "It's really popular with your younger (to) middle-aged, upwardly mobile people. They view it as a preventive thing where they go in, they pay 1,000 bucks or something ... and put a full-body scan on them that's totally unnecessary," she said.

The same trend prompted the National Toxicology Program to look into the health effects of radiation, an act that led it to add X-rays and gamma rays to the list - now 58 items long - of known human carcinogens.

"People were beginning to use more and more of these CT scans, which are equivalent to 100 to 400 X-rays at one shot," said Christopher Portier, associate director of the National Toxicology Program. "... That might not be a risk-free exercise, and people need to be reminded of that."

Lorenza Clausen, a radiology technologist at Mercy General, said the public should understand that even medically necessary procedures can result in significant exposure to radiation, too - exposure that she said can be reduced with training of medical personnel.

The use of fluoroscopy is an example. A form of real-time imaging that involves radiation, fluoroscopy is used increasingly in the treatment of heart problems, Clausen said. The imaging can enable a doctor to relieve blockage by inserting a stent into the clogged artery, thereby avoiding open-heart surgery.

Avoiding open-heart surgery is a good thing, of course, but the fluoroscopy is not benign, Clausen said. And a less-skilled physician might unwittingly expose a patient - along with everyone else in the room - to more radiation than is necessary.

"I've heard of (exposures) of 20 and 40 minutes at a time," she said. "That's a lot."

Reilly at the state health department said it's not clear whether rules that result from the new law will require that patient exposures are measured. The department is drafting regulations, which will be aired for public comment before going into effect by January 2008.

Oropeza said she is mindful of the need for individuals to keep better track of their medical radiation exposures. She considered legislation to require that radiation records be kept for patients, similar to vaccination records, but said the logistics were too complicated to work out during the legislative session. Oropeza may resurrect the idea.

"We're going to look at other ways of educating people to be more aware about especially unnecessary exposure," she said.

NEW LAW AT A GLANCE

Assembly Bill 929, the California Radiation Exposure Information Act, requires the state Department of Health Services to develop mandatory quality-assurance standards for all radiological equipment in California to ensure the lowest possible dose of radiation.

About the writer:

- The Bee's Edie Lau can be reached at (916) 321-1098 or elau@sacbee.com.

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UNIVERSITY OF CALIFORNIA, BERKELEY



Public Affairs, (510) 642-3734

NEWS RELEASE, 11/16/99

Radiation expert warns of danger from overuse of medical X-rays, claiming they're responsible for many cancer and heart disease deaths

By Robert Sanders, Public Affairs

- **BERKELEY--** A noted University of California, Berkeley, expert on the health effects of radiation has concluded that a large proportion of deaths today from cancer and heart disease are due in part to past exposure to medical radiation.

John W. Gofman, professor emeritus of molecular and cell biology at UC Berkeley, conducted an intensive analysis comparing death rates in each of the country's nine census divisions with the average number of physicians per 100,000 people in these divisions.

The analysis turned up a major surprise. While death rates from almost all causes went down with increasing physician density, death rates rose with physician density in two categories: cancer and ischemic heart disease, also known as coronary heart disease.

Gofman, who for decades has warned of the dangers of low-level radiation, concluded that the cause is medical X-rays, including fluoroscopy and computed tomography or CT scans. The analysis and conclusions are published this week in a 700-page monograph by the book division of the Committee for Nuclear Responsibility, Inc., a non-profit, public interest association Gofman founded in 1971.

"This is a serious public health problem," Gofman said. "We're talking about the two biggest causes of death in this country - cancer and heart disease - which together amount to 45 percent of all deaths. Medical X-rays are a major cause of these deaths."

Gofman does not discount the role of other factors in these diseases, including diet and smoking, but maintains that more than half the deaths from cancer and heart disease would not have occurred but for medical X-rays.

He also acknowledges the value of X-rays in diagnosis and to monitor medical treatment. Nevertheless, he urges physicians to be careful of unnecessarily high doses of X-rays, and to advise patients of the pros and cons of X-rays, much as they alert patients to the possible side effects of drugs.

"My findings are not going to cause patients to reject the obvious benefits of medical X-rays," Gofman said. "People are smart. Very soon, patients may insist on seeing some evidence that they will receive the lowest possible X-ray doses."

He also urges radiologists to reduce radiation doses delivered in standard procedures, and in his

study lists examples of how some hospitals and doctors have done this.

"These findings point to a safe and painless way to achieve big reductions in mortality from our two biggest killers, cancer and coronary heart disease," he said. "Reduce X-ray dosages, since the benefits of an X-ray can be obtained at much lower levels.

"When X-ray doses for mammograms were reduced tenfold, women began receiving the benefits with only one-tenth the former risk of getting cancer," added Gofman, who in 1995 published a study that ascribed 75 percent of breast cancer cases to past exposure from medical radiation. "But for many, many other X-ray procedures, the effort to achieve a tenfold reduction in dosage has not been made yet."

The problem, he argues, is an almost casual use of X-rays in the past. Through the 1940s, X-ray dosages often were 50 to 100 times those used today. Even as recently as the 1960s, mammograms sometimes delivered more than 100 times today's maximum allowed radiation dose. X-rays also were widely used for procedures doctors now know were unnecessary, such as routine X-rays during pediatric well-baby exams.

Though radiation doses have declined in many medical procedures, a proliferation of new uses of diagnostic and interventional radiation threatens to keep cumulative doses high, and thereby contribute to a higher mortality from heart disease and cancer, he said. What makes the situation even more alarming is that few physicians monitor the cumulative doses their patients get.

"There is the assumption that, at these doses, radiation doesn't make a significant contribution," he said. "But X-rays are very potent mutagens, even at low doses. It's a disaster that people still believe the 'safe dose myth,' that low doses are harmless."

Gofman, 81, has had a distinguished career in several fields, ranging from nuclear physics and lipoprotein research - he was the first to show that high levels of low-density lipoproteins, or LDLs, were a risk factor for atherosclerosis - to the health effects of radiation.

He began his recent analysis by using a huge census database that lists cause of death per age group within the country's nine census divisions, covering the entire population from 1940 to 1990.

He wanted to compare the death rates with estimates of the amount of medical radiation received on average by the population, but no such data exists. He therefore used a surrogate statistic: the number of physicians per 100,000 population, amassed over the years by the American Medical Association. He reasoned that since physicians prescribe X-rays, the number prescribed should be roughly proportional to the number of doctors serving the population.

Using regression analysis, he found that age-adjusted death rates for all types of cancer combined, and for ischemic heart disease by itself, rose with the number of physicians per 100,000 population in the census divisions. Conversely, all other diseases, when lumped together, showed a drop in the death rate as physician density rose. This held true in all age ranges.

Gofman argues that the correlation implies that death rates for cancer and heart disease have gone up as the number of medical procedures requiring radiation has gone up. Specifically, the study concludes that over 50 percent of the death rate from cancer today, and over 60 percent of today's

death rate from ischemic heart disease, are induced by X-rays in combination with other factors.

"Prior to 1940, no medical exam was considered complete without X-ray procedures, generally including fluoroscopy where the X-ray beam stays on," he said. "In fact, X-ray exposure began even in the womb for many people who are now age 30 and over, because until 1970, about one birth in every 14 was preceded by pelvic X-rays of the mother shortly before delivery, to measure the birth canal."

He discounts other explanations for the correlation, such as urbanization, differences in autopsy rates, different rates of reporting cancer deaths, and the possibility that chemotherapy for cancer could have caused some of the ischemic heart disease.

Though it is not surprising that cancer rates go up with the number of medical X-rays, Gofman was surprised to find a similar situation with ischemic heart disease, even though he was aware of studies that suggest atherosclerotic plaques in the arteries can be stimulated by chemical mutagens.

"It has been known for decades that high doses of radiation injure or kill the heart and blood vessels," Gofman said. "This study is about low and moderate doses accumulated over time. Each dose, no matter how low, produces mutations, so by the time you're 50, all of these events have added to the mutation load in your cells."

Fluoroscopies in particular are a major source of radiation today, he said, because the beam stays on during the procedure, such as threading a catheter or endoscope. The total dose can easily be reduced, he said, by using the fluoroscope only periodically, not continually.

"This makes good sense for doctors and their patients," he said. "We must reduce the amount of radiation patients get, and measure it to make sure we're right."

The study was funded by numerous small gifts from individuals and private foundations.

###

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HB

150

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FILE

FISCAL NOTE

STATE OF ALASKA
2006 LEGISLATIVE SESSION

Fiscal Note Number: 2
 Bill Version: CSHB 150(FIN)
 (H) Publish Date: 2/27/06

Revision Date/Time (Note if correction): _____ Dept. Affected: _____
 Title Licensing Radiological Technicians RDU Corp. Bus & Prof Licensing (117)
 Component Corp. Bus & Prof Licensing
 Sponsor Anderson
 Requester Finance Component No. 2360

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Personal Services	28.7	28.7	28.7	28.7	28.7	28.7
Travel	0.0	0.0	0.0	0.0	0.0	0.0
Contractual	6.0	6.0	6.0	6.0	6.0	6.0
Supplies	1.0	1.0	1.0	1.0	1.0	1.0
Equipment	6.0	0.0	0.0	0.0	0.0	0.0
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	41.7	35.7	35.7	35.7	35.7	35.7

CAPITAL EXPENDITURES						
CHANGE IN REVENUES (1156)	77.4	0.0	71.4	0.0	71.4	0.0

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1037 GF/Mental Health						
1156 Receipt Supported Services	41.7	35.7	35.7	35.7	35.7	35.7
TOTAL	41.7	35.7	35.7	35.7	35.7	35.7

Estimate of any current year (FY2006) cost: 0.0
 Check this box (X) if funding for this bill is included in the Governor's FY 2007 budget proposal:

POSITIONS

Full-time						
Part-time	1	1	1	1	1	1
Temporary						

ANALYSIS: *(Attach a separate page if necessary)*

This legislation establishes licensure for occupations relating to radiological technology. The division was advised that approximately 380 to 400 individuals will seek licensure under this bill. This fiscal note is based on the assumption there will be at least 400 licensees.

An explanation of the costs shown above is attached

Prepared by Jennifer Stricker, Chief Phone (907) 465-2144
 Division Corporations and Licensing Date/Time 2/24/06 11:57 AM
 Approved by William C Noll, Commissioner Date 2/24/2006
 Agency Commerce, Community and Economic Development

FISCAL NOTE #2

STATE OF ALASKA
2006 LEGISLATIVE SESSION

BILL NO. CSHB 150(FIN)

ANALYSIS CONTINUATION

CSHB 150(FIN): An Act requiring licensure of occupations relating to radiological technology,

Total PERSONAL SERVICES: \$28.7

- Occupational Licensing Examiner position, PPT, Range 13

This fiscal note provides funding for half of an Occupational Licensing Examiner position to provide support to this licensing program. This fiscal note identifies funding for half of a position and a corresponding position count.

Total TRAVEL: \$0

Total CONTRACTUAL SERVICES: \$6.0

- Printing, postage, communication, and advertising costs, \$3.0
- Regulations-related costs to establish education criteria and standards, and other requirements; including AAG time, \$3.0

Information has been received that licensure examinations are available from The American Registry of Radiological Technologists. The division will seek to make arrangements with this organization for use of the licensing examinations.

Total SUPPLIES: \$1.0

To fund daily operating supplies of the program

Total EQUIPMENT (one-time costs): \$8.0

TOTAL FISCAL NOTE: \$41.7

REVENUE: Revenue will be generated by individuals who seek license under this bill. Based on 400 licensees, each licensee can be expected to pay direct costs of approximately \$194.00 (\$77.4 biennial costs divided by 400); in addition to indirect costs of approximately \$100.00 per person, for an approximate initial licensing fee of \$294.00 biennially. Licensing fees will be adjusted at the first renewal based on actual costs and actual numbers of licensees.

HB 150

was referred to the
Senate Finance
Committee

Hearing(s) were held

The bill did not move
from Committee

SENATE FINANCE COMMITTEE
5 / 7 / 2006 COMMITTEE ACTION

Bill Number	HB 150		
Amendment			
Motion	to report from Committee		
<u>Motion by</u>	Dyson		
<u>Objection by</u>	Hoffman		
Removed			
<u>Second Objection by</u>			
<u>Committee Member</u>	<u>Y</u>	<u>Vote</u>	<u>N</u>
Senator Bunde	✓		
Senator Dyson	✓		
Senator Hoffman			✓
Senator Olson			✓
Senator Stedman			✓
Co-Chair Wilken			✓
Co-Chair Green			✓
<u>Tally</u>			
Yea	2		
Nay	5		
Absent			
MOTION	Failed		

Alaska State Legislature

House of Representatives



Official Business

State Capitol
Juneau, AK 99801-1182

SPONSOR STATEMENT SCSCSHB 150 (L&C)

BY: Representative Tom Anderson

"An Act requiring licensure of occupations relating to radiologic technology, radiation therapy, and nuclear medicine technology; and providing for an effective date."

The Radiologic Health Science professionals in the State of Alaska are dedicated to the preservation of life and health as well as the prevention and treatment of disease. The use of x-rays and other medical imaging disciplines is the most acceptable method for discovering and treating many conditions that might not otherwise be observed until it is too late for treatment.

The unregulated practice of Radiologic Technology, Nuclear Medicine Technology and Radiation Therapy by unqualified individuals represents a serious health risk to the citizens of Alaska. The Alaska Society of Radiologic Technologists has consistently supported the enactment of state standards for the education and credentialing of Radiologic Technologists, Radiation Therapists and Nuclear Medicine Technologists as a means of protecting Alaskans from the harmful effects of excessive and unnecessary exposure to medical radiation.

Any radiology procedure is only as effective as the person performing it. An underexposed chest x-ray cannot reveal pneumonia or a malignant lesion, just as an inadequate mammography technique cannot detect breast cancer. No matter what the procedure, the Radiologic Technologist's knowledge of anatomy, careful application of radiation and skillful operation of sophisticated medical equipment are the keys to its success. Patients have long benefited from Alaska's wisely implemented Radiology equipment performance standards but those benefits can easily be negated by under trained operators of the equipment. To be clinically useful, diagnostic imaging exams must be accurate. To stop invasive cancers, radiation therapy treatments must be precise.

To ensure that the citizens of the State of Alaska receive maximum protection practicable from the harmful effects of excessive and improper exposure to ionizing radiation, licensure must be passed to establish standards.

Establishing state standards will ensure that Alaskans will have access to safe and high quality radiologic care. Licensure for Radiologic Technologists, Radiation Therapists and Nuclear Medicine Technologists will establish radiation protection measures as well as education and credentialing standards that will ensure the competency of persons operating medical equipment emitting radiation.

I urge your support of this important piece of legislation.

24-LS0470/M

ALASKA STATE HOUSE OF REPRESENTATIVES

Labor & Commerce Committee, Chair

Administrative Regulation Review, Chair

Judiciary Committee, Vice-Chair

Health, Education and Social Services



716 W 4th Ave
Suite 610
Anchorage, AK 99501

Phone (907) 269-0265
Fax (907) 269-0264

Representative Tom Anderson

Licensure Provisions of SCSCSHB 150(L&C)

	Full Radiographer	Limited Radiologic Imager
License Requirements	<ul style="list-style-type: none"> • 18 years of age • Graduated from secondary school • Have graduated from a program approved by the department • Met the examination requirement • Pay the required fees <p><i>(Page 3, Lines 10-25)</i></p>	<ul style="list-style-type: none"> • 18 years of age • Graduated from secondary school • Have graduated from a program approved by the department <i>or</i> have two years of clinical experience in limited radiologic imaging • Met the examination requirement • Pay the required fees • May perform imaging only under the supervision of a fully licensed radiographer or licensed practitioner • May perform peripheral bone densitometry under direct supervision; May perform central bone densitometry if credentialed by an organization recognized by the department • May not perform contrast media, fluoroscopic procedures, mammography, tomography, etc. <p><i>(Page 4, Lines 22-30 - Page 5, Lines 1-14)</i></p>
Licensure Exemptions	<ul style="list-style-type: none"> • Licensed Practitioners • Licensed under another provision of state law for the use of radiation for diagnostic or therapeutic purposes • A student in a medical, dental, osteopathic, chiropractic, podiatric, radiological technologist, radiation therapy, nuclear medicine, physician assistant, or nurse practitioner school program under the direct supervision of a licensed practitioner or full radiographer • In the regular medical service of 	Same as the full radiographer. These exemptions apply to both licensures.

	<p>the United States military or United States Public Health Service (Page 2, Lines 3-25)</p>	
Training Program Requirements	<ul style="list-style-type: none"> The program is affiliated with at least one hospital that provides a clinical component The curriculum meets the standard approved by the Joint Review Committee on Education in Radiologic Technology A recognized national voluntary accrediting organization has reviewed the program's application to the department and submitted review comments back to the department (Page 3, Lines 26-31 – Page 4, Lines 1-12) 	<ul style="list-style-type: none"> The program must include didactic and clinical instruction in axial-appendicular skeleton radiography, chest and abdomen radiography, equipment maintenance and operation, radiation safety and production, image production and evaluation, radiographic anatomy and positioning procedures <i>or</i> any training program sponsored by a medical facility supervised and instructed by a licensed practitioner or fully licensed radiographer There is no minimum coursework hour requirement (Page 5, lines 15-29)
Clinical Experience	<ul style="list-style-type: none"> There is no specific clinical experience requirement or provision for licensure except that an approved program must include a clinical component as part of its curriculum (Page 4, Lines 1-3) 	<ul style="list-style-type: none"> Although clinical experience is not required for limited licensure, two years of clinical experience may substitute for formal training (Page 4, lines 27-30)
Examination Provisions	<p>An applicant can select one of three options:</p> <ul style="list-style-type: none"> Pass an examination approved by the department Provide proof of certification by the American Registry of Radiologic Technologists Provide proof of licensure from another jurisdiction (Page 4, Lines 13-21) 	<ul style="list-style-type: none"> There is one examination instrument which the department is directed to make as widely available as possible The examination will be developed by the department in cooperation with the Alaska State Medical Board, the AK Society of Radiologic Technologists, the Office of Radiologic Health, and a member of the American College of Radiology The minimum passing score is 75% (Page 5, line 30-31 – Page 6, Lines 1-11)
Temporary Permit Options	<ul style="list-style-type: none"> If within one year of completing a program or after taking an exam and waiting for results the department may issue a temporary permit valid for two years If the applicant provides proof of certification from a recognized national credentialing body the department may issue a temporary permit valid for one year (Page 6, Lines 12-31 – Page 7, Lines 1-9) 	<p>An applicant having either two years of clinical experience or having enrolled in a training program is eligible for a temporary permit valid for two years from the date of issuance (Page 6, Lines 13-31)</p>
Effective Date	<p>July 1, 2008* *With temporary permit provisions, a license will not be required until 2010 (Page 12, Line 6)</p>	<p>July 1, 2008* *With temporary permit provisions, a license will not be required until 2010 (Page 12, Line 6)</p>

STATE OF ALASKA

DEPARTMENT of HEALTH & SOCIAL SERVICES
DIVISION of PUBLIC HEALTH

FRANK H. MURKOWSKI, GOVERNOR

OFFICE OF THE DIRECTOR
P.O. BOX 110610
JUNEAU, AK 99811-0610
PHONE: (907) 465-3090
FAX: (907) 465-4632

February 13, 2006

The Honorable Tom Anderson
Alaska House of Representatives
State Capitol, Room 408
Juneau, AK 99801

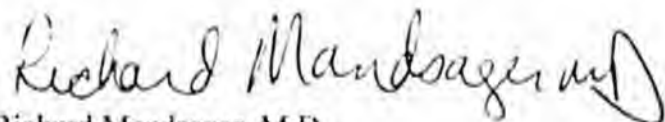
Dear Representative Anderson:

Your office has asked for my opinion of House Bill 150, your proposal to license radiographers and other professionals who operate radiology equipment in Alaska. As I have testified in the past, I continue to support efforts by the Legislature to strike a balance between better protecting the public – and radiographers themselves – from exposure to harmful X-rays while not overburdening small providers who offer critical health care throughout the state. The newest version of HB150 appears to do a good job protecting small doctor's offices and rural clinics, which, under the initial version, might have had to halt radiology services while the tech completed training. Now the bill allows such employees to continue work while enrolled in a training program. Your latest version also continues to recognize limited radiological imagers who have years of experience in the field by allowing them the opportunity to pass a competency exam without enrolling in required training.

I understand the bill is scheduled for discussion today in the House Finance Committee. Because of a scheduling conflict, I won't be able to attend. The Division of Public Health will continue to be represented at hearings on this bill by Clyde Pearce, Manager of the Radiological Health Program in our Section of Laboratories.

Thank you for the opportunity to comment on House Bill 150.

Sincerely,



Richard Mandsager, M.D.
Director
Division of Public Health

UNIVERSITY OF CALIFORNIA, BERKELEY



Public Affairs, (510) 642-3734

NEWS RELEASE, 11/16/99

Radiation expert warns of danger from overuse of medical X-rays, claiming they're responsible for many cancer and heart disease deaths

By Robert Sanders, Public Affairs

- **BERKELEY--** A noted University of California, Berkeley, expert on the health effects of radiation has concluded that a large proportion of deaths today from cancer and heart disease are due in part to past exposure to medical radiation.

John W. Gofman, professor emeritus of molecular and cell biology at UC Berkeley, conducted an intensive analysis comparing death rates in each of the country's nine census divisions with the average number of physicians per 100,000 people in these divisions.

The analysis turned up a major surprise. While death rates from almost all causes went down with increasing physician density, death rates rose with physician density in two categories: cancer and ischemic heart disease, also known as coronary heart disease.

Gofman, who for decades has warned of the dangers of low-level radiation, concluded that the cause is medical X-rays, including fluoroscopy and computed tomography or CT scans. The analysis and conclusions are published this week in a 700-page monograph by the book division of the Committee for Nuclear Responsibility, Inc., a non-profit, public interest association Gofman founded in 1971.

"This is a serious public health problem," Gofman said. "We're talking about the two biggest causes of death in this country - cancer and heart disease - which together amount to 45 percent of all deaths. Medical X-rays are a major cause of these deaths."

Gofman does not discount the role of other factors in these diseases, including diet and smoking, but maintains that more than half the deaths from cancer and heart disease would not have occurred but for medical X-rays.

He also acknowledges the value of X-rays in diagnosis and to monitor medical treatment. Nevertheless, he urges physicians to be careful of unnecessarily high doses of X-rays, and to advise patients of the pros and cons of X-rays, much as they alert patients to the possible side effects of drugs.

"My findings are not going to cause patients to reject the obvious benefits of medical X-rays," Gofman said. "People are smart. Very soon, patients may insist on seeing some evidence that they will receive the lowest possible X-ray doses."

He also urges radiologists to reduce radiation doses delivered in standard procedures, and in his

study lists examples of how some hospitals and doctors have done this.

"These findings point to a safe and painless way to achieve big reductions in mortality from our two biggest killers, cancer and coronary heart disease," he said. "Reduce X-ray dosages, since the benefits of an X-ray can be obtained at much lower levels.

"When X-ray doses for mammograms were reduced tenfold, women began receiving the benefits with only one-tenth the former risk of getting cancer," added Gofman, who in 1995 published a study that ascribed 75 percent of breast cancer cases to past exposure from medical radiation. "But for many, many other X-ray procedures, the effort to achieve a tenfold reduction in dosage has not been made yet."

The problem, he argues, is an almost casual use of X-rays in the past. Through the 1940s, X-ray dosages often were 50 to 100 times those used today. Even as recently as the 1960s, mammograms sometimes delivered more than 100 times today's maximum allowed radiation dose. X-rays also were widely used for procedures doctors now know were unnecessary, such as routine X-rays during pediatric well-baby exams.

Though radiation doses have declined in many medical procedures, a proliferation of new uses of diagnostic and interventional radiation threatens to keep cumulative doses high, and thereby contribute to a higher mortality from heart disease and cancer, he said. What makes the situation even more alarming is that few physicians monitor the cumulative doses their patients get.

"There is the assumption that, at these doses, radiation doesn't make a significant contribution," he said. "But X-rays are very potent mutagens, even at low doses. It's a disaster that people still believe the 'safe dose myth,' that low doses are harmless."

Gofman, 81, has had a distinguished career in several fields, ranging from nuclear physics and lipoprotein research - he was the first to show that high levels of low-density lipoproteins, or LDLs, were a risk factor for atherosclerosis - to the health effects of radiation.

He began his recent analysis by using a huge census database that lists cause of death per age group within the country's nine census divisions, covering the entire population from 1940 to 1990.

He wanted to compare the death rates with estimates of the amount of medical radiation received on average by the population, but no such data exists. He therefore used a surrogate statistic: the number of physicians per 100,000 population, amassed over the years by the American Medical Association. He reasoned that since physicians prescribe X-rays, the number prescribed should be roughly proportional to the number of doctors serving the population.

Using regression analysis, he found that age-adjusted death rates for all types of cancer combined, and for ischemic heart disease by itself, rose with the number of physicians per 100,000 population in the census divisions. Conversely, all other diseases, when lumped together, showed a drop in the death rate as physician density rose. This held true in all age ranges.

Gofman argues that the correlation implies that death rates for cancer and heart disease have gone up as the number of medical procedures requiring radiation has gone up. Specifically, the study concludes that over 50 percent of the death rate from cancer today, and over 60 percent of today's

death rate from ischemic heart disease, are induced by X-rays in combination with other factors.

"Prior to 1940, no medical exam was considered complete without X-ray procedures, generally including fluoroscopy where the X-ray beam stays on," he said. "In fact, X-ray exposure began even in the womb for many people who are now age 30 and over, because until 1970, about one birth in every 14 was preceded by pelvic X-rays of the mother shortly before delivery, to measure the birth canal."

He discounts other explanations for the correlation, such as urbanization, differences in autopsy rates, different rates of reporting cancer deaths, and the possibility that chemotherapy for cancer could have caused some of the ischemic heart disease.

Though it is not surprising that cancer rates go up with the number of medical X-rays, Gofman was surprised to find a similar situation with ischemic heart disease, even though he was aware of studies that suggest atherosclerotic plaques in the arteries can be stimulated by chemical mutagens.

"It has been known for decades that high doses of radiation injure or kill the heart and blood vessels," Gofman said. "This study is about low and moderate doses accumulated over time. Each dose, no matter how low, produces mutations, so by the time you're 50, all of these events have added to the mutation load in your cells."

Fluoroscopies in particular are a major source of radiation today, he said, because the beam stays on during the procedure, such as threading a catheter or endoscope. The total dose can easily be reduced, he said, by using the fluoroscope only periodically, not continually.

"This makes good sense for doctors and their patients," he said. "We must reduce the amount of radiation patients get, and measure it to make sure we're right."

The study was funded by numerous small gifts from individuals and private foundations.

###

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States With Licensure or Certification Laws

U.S. States with Licensure/Certification Laws or Regulations and Year of Implementation

Arizona-1977	Montana-1977
Arkansas-1999	Nebraska-1987
California-1969	New Jersey-1968
Connecticut-1993	New Mexico-1983
Delaware-1989	New York-1965
Florida-1979	North Dakota-2003
Hawaii-1974	Ohio-1995
Illinois-1990	Oregon-1979
Indiana-1982	Rhode Island-1994
Iowa-1987	South Carolina-1999
Kansas-2004	Texas-1987
Kentucky-1978	Utah-1989
Louisiana-1984	Vermont-1984
Maine-1984	Virginia-1997
Maryland-1992	Washington-1991
Massachusetts-1987	West Virginia-1977
Mississippi-1996	Wyoming-1985

States With Partial Licensure Laws and/or Other Forms of Regulation

- **Colorado** – Laws for mammography and limited (non-ARRT registered) licensure only.
- **Michigan** – Laws for mammography only.
- **Nevada** – Laws for mammography only.
- **Pennsylvania** – Technologists who have not passed the ARRT or other board-approved examination must pass a state examination to perform patient examinations in physician, osteopathic physician, podiatrist, chiropractic or dentist offices.
- **Minnesota** – Operator of any x-ray equipment for human use must be either a registered radiologic technologist through the ARRT, a licensed person from another state (and are then given an x-ray operator equivalent standing) or have passed one of Minnesota's state approved exams.
- **Tennessee** – Technologists who have not passed the ARRT or other board-approved examination must pass a state examination to perform patient examinations in physician, osteopathic physician, podiatrist, chiropractic or dentist offices.
- **Wisconsin** – Requires that all CT technologists and radiation therapists be ARRT certified.

States without Licensure Laws or With Legislative Proposals Being Considered

Alabama	Missouri
Alaska	New Hampshire
District of Columbia	North Carolina
Georgia	Oklahoma
Idaho	South Dakota



Questions and Answers About Licensure

Q *How does the unregulated practice of radiologic technology harm or endanger the public?*

A As physics and radiation biology textbooks attest, there is no threshold level for damage to healthy tissue due to ionizing radiation. In other words, there is no dose so small that it cannot potentially cause biological damage.

Q *What about alternatives to licensure such as a proficiency examination or certification by a professional association?*

A The problem with some alternatives to licensure is that they are voluntary and many health care workers will choose not to comply. State licensure programs are the most effective way to control the practice of uncredentialed individuals. As a result, licensure offers the public the best protection from unnecessary exposure to ionizing radiation and the highest quality radiologic patient care.

Q *How will the public benefit from licensure of radiologic technologists?*

A The public benefits by receiving care from properly educated and credentialed professionals who have met all of the requirements to practice radiologic technology.

Q *How do we ensure the competencies of radiologic technologists?*

A No one can be 100 percent sure of the competencies of any professional, whether in medicine, law or radiologic technology. However, steps to ensure the competence of individual practitioners can be taken. Accredited educational programs and state licensure programs are the main mechanisms for ensuring the competence of radiologic technologists. The curriculum for educational programs in radiologic technology is competency based, meaning students must meet performance objectives. The national certification examination also is a criterion-referenced, performance-based examination that has demonstrated high validity and reliability.

Q *Do the benefits of licensure justify the costs?*

A As with any endeavor, licensure requires a cost vs. benefit analysis. This is especially important in light of rising health care costs. Many states that have already implemented licensure programs saved the cost of developing an examination by contracting with the American Registry of Radiologic Technologists to use the national certification examination as their state licensing examination. Also, many states use license fees to fund their licensure program. Overall, the impact on state budgets and the health care economy are minimal.

Q *How will licensure affect the job market? Will it drive wages up, forcing employers to cut costs or raise patient fees?*

A As with any other profession or occupation, the primary objective of licensing radiologic technologists is not to create a favorable supply/demand arrangement. Rather, the objective is to restrict practice to individuals who meet certain standards and improve the quality of patient care. In California and New York, states with long-standing licensure laws, there have been no appreciable increases in average salaries for radiologic technologists since the laws passed.

Q *Won't licensure lead to fragmented care and higher health care costs, in effect creating an obstacle to health care delivery?*

A The major objective of licensure is to solve the problem of uncredentialed practitioners performing radiologic examinations on human beings. Related objectives are to reduce unnecessary radiation exposure and reduce costs associated with repeat examinations. Far from creating obstacles, properly educated and credentialed practitioners streamline health care and ensure the highest possible quality of care.



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Radiologic Technologists and Technicians

- [Nature of the Work](#)
- [Working Conditions](#)
- [Training, Other Qualifications, and Advancement](#)
- [Employment](#)
- [Job Outlook](#)
- [Earnings](#)
- [Related Occupations](#)
- [Sources of Additional Information](#)

SIGNIFICANT POINTS

- Job opportunities are expected to be favorable; some employers report difficulty hiring sufficient numbers of radiologic technologists and technicians.
- Formal training programs in radiography range in length from 1 to 4 years and lead to a certificate, an associate degree, or a bachelor's degree.
- Although hospitals will remain the primary employer, a greater number of new jobs will be found in physicians' offices and diagnostic imaging centers.

NATURE OF THE WORK

[\[About this section\]](#)

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Radiologic technologists and technicians take x rays and administer nonradioactive materials into patients' bloodstreams for diagnostic purposes. Some specialize in diagnostic imaging technologies, such as computerized tomography (CT) and magnetic resonance imaging (MRI).

In addition to radiologic technologists and technicians, others who conduct diagnostic imaging procedures include cardiovascular technologists and technicians, diagnostic medical sonographers, and nuclear medicine technologists. (Each is discussed elsewhere in the *Handbook*.)

Occupations:

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Radiologic technologists and technicians, also referred to as *radiographers*, produce x-ray films (radiographs) of parts of the human body for use in diagnosing medical problems. They prepare patients for radiologic examinations by explaining the procedure, removing articles such as jewelry, through which x rays cannot pass, and positioning patients so that the parts of the body can be appropriately radiographed. To prevent unnecessary exposure to radiation, these workers surround the exposed area with radiation protection devices, such as lead shields, or limit the size of the x-ray beam. Radiographers position radiographic equipment at the correct angle and height over the appropriate area of a patient's body. Using instruments similar to a measuring tape, they may measure the thickness of the section to be radiographed and set controls on the x-ray machine to produce radiographs of the appropriate density, detail, and contrast. They place the x-ray film under the part of the patient's body to be examined and make the exposure. They then remove the film and develop it.

Experienced radiographers may perform more complex imaging procedures. For fluoroscopies, radiographers prepare a solution of contrast medium for the patient to drink, allowing the radiologist (a physician who interprets radiographs) to see soft tissues in the body. Some radiographers, called *CT technologists*, operate CT scanners to produce cross-sectional images of patients. Radiographers who operate machines that use strong magnets and radio waves, rather than radiation, to create an image are called *MRI technologists*.

Radiologic technologists and technicians must follow physicians' orders precisely and conform to regulations concerning the use of radiation to protect themselves, their patients, and their coworkers from unnecessary exposure.

In addition to preparing patients and operating equipment, radiologic technologists and technicians keep patient records and adjust and maintain equipment. They also may prepare work schedules, evaluate purchases of equipment, or manage a radiology department.

WORKING CONDITIONS

[About this section]

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Most full-time radiologic technologists and technicians work about 40 hours a week. They may, however, have evening, weekend, or on-call hours. Opportunities for part-time and shift work also are available.

Physical stamina is important, because technologists and technicians are on their feet for long periods and may lift or turn disabled patients. Technologists and technicians work at diagnostic machines,

but also may perform some procedures at patients' bedsides. Some travel to patients in large vans equipped with sophisticated diagnostic equipment.

Although radiation hazards exist in this occupation, they are minimized by the use of lead aprons, gloves, and other shielding devices, as well as by instruments monitoring exposure to radiation. Technologists and technicians wear badges measuring radiation levels in the radiation area, and detailed records are kept on their cumulative lifetime dose.

TRAINING, OTHER QUALIFICATIONS, AND ADVANCEMENT

[\[About this section\]](#)

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Preparation for this profession is offered in hospitals, colleges and universities, vocational-technical institutes, and the U.S. Armed Forces. Hospitals, which employ most radiologic technologists and technicians, prefer to hire those with formal training.

Formal training programs in radiography range in length from 1 to 4 years and lead to a certificate, an associate degree, or a bachelor's degree. Two-year associate degree programs are most prevalent.

Some 1-year certificate programs are available for experienced radiographers or individuals from other health occupations, such as medical technologists and registered nurses, who want to change fields or specialize in CT or MRI. A bachelor's or master's degree in one of the radiologic technologies is desirable for supervisory, administrative, or teaching positions.

The Joint Review Committee on Education in Radiologic Technology accredits most formal training programs for the field. The committee accredited 606 radiography programs in 2005. Radiography programs require, at a minimum, a high school diploma or the equivalent. High school courses in mathematics, physics, chemistry, and biology are helpful. The programs provide both classroom and clinical instruction in anatomy and physiology, patient care procedures, radiation physics, radiation protection, principles of imaging, medical terminology, positioning of patients, medical ethics, radiobiology, and pathology.

Federal legislation protects the public from the hazards of unnecessary exposure to medical and dental radiation by ensuring that operators of radiologic equipment are properly trained. Under this legislation, the Federal Government sets voluntary standards that the States may use for accrediting training programs and certifying individuals who engage in medical or dental radiography.

In 2005, 38 States certified radiologic technologists and technicians.

Certification, which is voluntary, is offered by the American Registry of Radiologic Technologists. To be eligible for certification, technologists generally must graduate from an accredited program and pass an examination. Many employers prefer to hire certified radiographers. To be recertified, radiographers must complete 24 hours of continuing education every two years.

Radiologic technologists and technicians should be sensitive to patients' physical and psychological needs. They must pay attention to detail, follow instructions, and work as part of a team. In addition, operating complicated equipment requires mechanical ability and manual dexterity.

With experience and additional training, staff technologists may become specialists, performing CT scanning, angiography, and magnetic resonance imaging. Experienced technologists also may be promoted to supervisor, chief radiologic technologist, and, ultimately, department administrator or director. Depending on the institution, courses or a master's degree in business or health administration may be necessary for the director's position. Some technologists progress by leaving the occupation to become instructors or directors in radiologic technology programs; others take jobs as sales representatives or instructors with equipment manufacturers.

EMPLOYMENT

[\[About this section\]](#)

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Radiologic technologists and technicians held about 182,000 jobs in 2004. More than half of all jobs were in hospitals. Most of the rest were in offices of physicians; medical and diagnostic laboratories, including diagnostic imaging centers; and outpatient care centers.

JOB OUTLOOK

[\[About this section\]](#)

[▲ Back to Top](#)

Job opportunities are expected to be favorable. Some employers report difficulty hiring sufficient numbers of radiologic technologists and technicians. Imbalances between the demand for, and supply of, radiologic technologists and technicians should spur efforts to attract and retain qualified workers, such as improved compensation and working conditions. Radiologic technologists who also are experienced in more complex diagnostic imaging procedures, such as CT and MRI, will have better employment opportunities, brought about as employers seek to control costs by using multiskilled employees.

Employment of radiologic technologists and technicians is expected to **grow faster than the average** for all occupations through

2014, as the population grows and ages, increasing the demand for diagnostic imaging. Although healthcare providers are enthusiastic about the clinical benefits of new technologies, the extent to which they are adopted depends largely on cost and reimbursement considerations. For example, digital imaging technology can improve the quality of the images and the efficiency of the procedure, but remains expensive. Some promising new technologies may not come into widespread use because they are too expensive and third-party payers may not be willing to pay for their use.

Hospitals will remain the principal employer of radiologic technologists and technicians. However, a greater number of new jobs will be found in offices of physicians and diagnostic imaging centers. Health facilities such as these are expected to grow rapidly through 2014, due to the strong shift toward outpatient care, encouraged by third-party payers and made possible by technological advances that permit more procedures to be performed outside the hospital. Some job openings also will arise from the need to replace technologists and technicians who leave the occupation.

EARNINGS

[\[About this section\]](#)

[▲ Back to Top](#)

Median annual earnings of radiologic technologists and technicians were \$43,350 in May 2004. The middle 50 percent earned between \$36,170 and \$52,430. The lowest 10 percent earned less than \$30,020, and the highest 10 percent earned more than \$60,210. Median annual earnings in the industries employing the largest numbers of radiologic technologists and technicians in May 2004 were:

Medical and diagnostic laboratories	\$46,720
General medical and surgical hospitals	43,960
Offices of physicians	40,290

RELATED OCCUPATIONS

[\[About this section\]](#)

[▲ Back to Top](#)

Radiologic technologists and technicians operate sophisticated equipment to help physicians, dentists, and other health practitioners diagnose and treat patients. Workers in related occupations include **cardiovascular technologists and technicians, clinical laboratory technologists and technicians, diagnostic medical sonographers, nuclear medicine technologists, radiation therapists, and respiratory therapists.**

**SOURCES OF
ADDITIONAL
INFORMATION**[\[About this section\]](#)[▲ Back to Top](#)**DISCLAIMER:**

Links to non-BLS Internet sites are provided for your convenience and do not constitute an endorsement.

For career information, send a stamped, self-addressed business-size envelope with your request to:

- American Society of Radiologic Technologists, 15000 Central Ave. S.E., Albuquerque, NM 87123-3917. Internet: <http://www.asrt.org>

For the current list of accredited education programs in radiography, write to:

- Joint Review Committee on Education in Radiologic Technology, 20 N. Wacker Dr., Suite 2850, Chicago, IL 60606-3182. Internet: <http://www.jrcert.org>

For information on certification, contact:

- American Registry of Radiologic Technologists, 1255 Northland Dr., St. Paul, MN 55120-1155. Internet: <http://www.arrt.org>

OOH ONET CODES[\[About this section\]](#)[▲ Back to Top](#)

29-2034.01, 29-2034.02

Suggested citation: Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2006-07 Edition*, Radiologic Technologists and Technicians, on the Internet at <http://www.bls.gov/oco/ocos105.htm> (visited January 30, 2006).

Last Modified Date: December 20, 2005

Occupations: Management | Professional | Service | Sales | Administrative | Farming
| Construction | Installation | Production | Transportation | Armed Forces

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U.S. Bureau of Labor Statistics
Office of Occupational Statistics and Employment
Projections
Suite 2135
2 Massachusetts Avenue, NE
Washington, DC 20212-0C01

URL: <http://www.bls.gov/OCO/>
Phone: (202) 691-5700
Fax: (202) 691-5745

Do you have a question about the
Occupational Outlook Handbook?

Technical (web) questions:
webmaster@bls.gov

Other comments: feedback@bls.gov

United States Office of Personnel
Management

Operating Manual



Qualification Standards for General Schedule Positions

Individual Occupational Requirements for

GS-647: Diagnostic Radiologic Technologist Series

The text below is extracted verbatim from Section IV-B of the Operating Manual for Qualification Standards for General Schedule Positions (p. IV-B-105), but contains minor edits to conform to web-page requirements.

Use these individual occupational requirements in conjunction with the "Group Coverage Qualification Standard for Technical and Medical Support Positions."

NOTE: Public Law 97-35 requires that persons who administer radiologic procedures meet the credentialing standards in 42 CFR Part 75. Essentially, they must (1) have successfully completed an educational program that meets or exceeds the standards described in that regulation, and is accredited by an organization recognized by the Department of Education, and (2) be certified as radiographers in their field. The following meet these requirements:

- (1) Persons employed by the Federal Government as radiologic personnel prior to the effective date of the regulation (January 13, 1986) who show evidence of current or fully satisfactory performance or certification of such from a licensed practitioner such as a doctor of medicine, osteopathy, dentistry, podiatry, or chiropractic who prescribes radiologic procedures to others.
- (2) Persons first employed by the Federal Government as radiologic personnel after the effective date of the regulation who
 - (a) received training from institutions in a State or foreign jurisdiction that did not accredit training in that particular field at the time of graduation, or
 - (b) practiced in a State or foreign jurisdiction that did not license that particular field or did not allow special eligibility to take a licensure examination for those who did

not graduate from an accredited educational program, provided that such persons show evidence of training, experience, and competence as determined by OPM or the employing agency.

All applicants, however, must meet the requirements below.

Specialized Experience (for positions at GS-4 and above): Experience in the operation of diagnostic radiology equipment under the direction of radiologists or other medical officers to produce radiographic studies used in medical diagnosis and treatment.

OR

Education and Training: Qualifying educational programs for radiography and radiation therapy technology are available in accredited colleges, universities, hospitals, medical schools, or postsecondary technical or vocational schools. Education or training from programs based in hospitals must have been from those hospitals that were accredited at the time of the education or training by the Joint Commission on Accreditation of Hospitals or by the American Osteopathic Association.

For GS-3: Successful completion of (a) 1 year of study with at least 6 semester hours in any combination of the following: anatomy, biology, mathematics, chemistry, radiation physics, physiology, pathology, medical terminology, or related courses, or (b) a course for medical technicians, hospital corpsmen, medical service specialists, or hospital training obtained in a training program given by the Armed Forces or the U.S. Maritime Service under close medical and professional supervision.

For GS-4: Successful completion of a full-time training course of at least 12 months' duration in a post-high school radiography program.

For GS-5: Successful completion of a full-time training course of at least 24 months' duration in a post-high school radiography program.

Successful completion of a course for medical radiologic technicians in the Armed Forces is qualifying on a month-for-month basis up to the 1 year of specialized experience required for GS-5.

- [To Top of This Page](#)
- [To Qualifications Standards Front Page](#)
- [To OPM Web Site Index](#)
- [To OPM Home Page](#)

Page created 22 March 1999

ANSWERS TO THE MOST COMMONLY ASKED QUESTIONS ABOUT HB150

Will HB 150 create a hardship for small businesses and limit access of care to patients in rural Alaska?

HB 150 will not change the way that small businesses and rural clinics operate. The individuals who currently perform x-ray procedures at these sites will be able to continue to do so. The clinics will have no interruption in services while their staff receives training. Some of the individuals who are currently performing x-ray exams may have had enough education and experience to qualify for an exemption from additional education. Those individuals who need additional education will be able to receive the education online at either the clinic site or from their homes. They will be allowed to continue working while they obtain the necessary education to qualify them for a limited scope license.

A national survey that queried the states that had licensure experienced:

- NO** shortage of medical radiographers
- NO** increase in radiographer's salaries
- NO** reduced access to health care at facilities that had to cut back or restrict access
- NO** facility closure due to licensure

How costly are the educational requirements?

Two examples of affordable education:

- 1.) University of Alaska Anchorage - Limited Radiologic Imager program for \$109 per credit hour (9 credit hour program). Can accommodate 30 students per year.
- 2.) Glacier Valley Medical Education - online course for \$229.
 - a.) Program is open for registration at any time.
 - b.) Ideal for facilities that are operating on a limited budget.
 - c.) Twelve other states recognize this course as a qualification for obtaining the state's limited license.

How would an individual demonstrate experience sufficient in the opinion of the department to waive the program?

- 1.) Passing a limited examination established by the department.
- 2.) Clinical review of film examples by an individual who possesses a full certificate license and designated by the department.

How can training be provided to people in the bush without making it an extreme hardship?

With computer and the internet, villagers will obtain the education necessary to meet the qualifications for the limited radiologic imager license.

How will limited scope obtain CE?

Continuing education credits for limited imager licensees will not be required.

Continuing to meet established competencies (proficiencies) on a biennium basis will be required for renewal of licenses.

Will Healthcare costs increase with licensure?

Studies in California, which has had a licensure program for a number of years, found that healthcare costs did not increase when licensure was required.

Will Radiologic Technologists salaries increase with passage of HB150?

The American Society of Radiologic Technologists studied radiologic technologists' salaries in Arkansas and South Carolina (states that have recently passes licensure laws). Following the implementation of state laws there was no additional increase in salary above the national norm.

How will licensing guarantee that a person taking x-rays is better qualified to perform their job duties?

Applying the question to healthcare in general would lead to the question about whether patients are safer because physicians, nurses or physician assistants must be licensed. If licensing is ineffective then there is no basis for licensing any healthcare group.

- 1.) Licensing is a measurement of quality and establishes standards for a profession.
- 2.) Licensing will guarantee that a person performing a job has met the educational requirements for the profession.
- 3.) Protects the public from unnecessary radiation exposure.

STATE OF ALASKA

DEPARTMENT of HEALTH & SOCIAL SERVICES
DIVISION of PUBLIC HEALTH

FRANK H. MURKOWSKI, GOVERNOR

OFFICE OF THE DIRECTOR
P.O. BOX 110610
JUNEAU, AK 99811-0610
PHONE: (907) 465-3090
FAX: (907) 465-4632

February 13, 2006

The Honorable Tom Anderson
Alaska House of Representatives
State Capitol, Room 408
Juneau, AK 99801

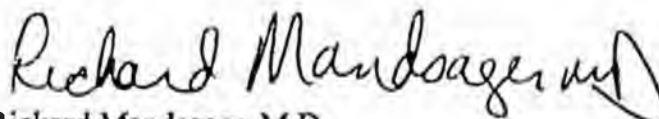
Dear Representative Anderson:

Your office has asked for my opinion on House Bill 150, your proposal to license radiographers and other professionals who operate radiology equipment in Alaska. As I have testified in the past, I continue to support efforts by the Legislature to strike a balance between better protecting the public – and radiographers themselves – from exposure to harmful X-rays while not overburdening small providers who offer critical health care throughout the state. The newest version of HB150 appears to do a good job protecting small doctor's offices and rural clinics, which, under the initial version, might have had to halt radiology services while the tech completed training. Now the bill allows such employees to continue work while enrolled in a training program. Your latest version also continues to recognize limited radiological imagers who have years of experience in the field by allowing them the opportunity to pass a competency exam without enrolling in required training.

I understand the bill is scheduled for discussion today in the House Finance Committee. Because of a scheduling conflict, I won't be able to attend. The Division of Public Health will continue to be represented at hearings on this bill by Clyde Pearce, Manager of the Radiological Health Program in our Section of Laboratories.

Thank you for the opportunity to comment on House Bill 150.

Sincerely,



Richard Mandsager, M.D.
Director
Division of Public Health

HB

155

HFIN

FILE

HOUSE COMMITTEE REPC T

(11)

Date Referred to Committee: March 3, 2005

FURTHER REFERRALS:

Date of Committee Action: 3/15/05

The FINANCE Committee considered:

HB 155

HOUSE BILL NO. 155

USE CRIMINAL FINES FOR YOUTH COURTS

"An Act relating to youth courts and to the recommended use of criminal fines to fund the activities of youth courts; and relating to accounting for criminal fines."

Recommends it be replaced with HCS or CS for HB 155 (JUD)
 For Senate Bills with new title: Technical Title New Title: HCR _____ Same Title New Title

- attach amendments
- add new referral to _____ Committee
- Letter of Intent _____ Committee

List of Abbrev for Depts.:

- ADM
- CEC
- COR
- CRT
- EED
- DEC
- DFG
- GOV
- HSS
- LEG
- LAW
- LWF
- MVA
- DNR
- DPS
- REV
- DOT
- UA

<u>NEW FISCAL NOTES</u>				
*Assigned by Chief Clerk's Office				
List by Dept(s):	*FN#	Fiscal	Indet.	Zero
DHSS				✓

<u>PREVIOUS FISCAL NOTES</u>				
List by Dept(s):	FN#	Fiscal	Indet.	Zero
LAW	#1			✓

<u>Signing with recommendations</u>	Printed Last Name	DP	DNP	NR	AM
<i>[Signature]</i>	Hawkins	✓			
<i>[Signature]</i>	CROFT	✓			
<i>[Signature]</i>	STARR			✓	
<i>[Signature]</i>	Kelly			X	
<i>[Signature]</i>	Weyhrach	X			
<i>[Signature]</i>	Foster	X			
Chair: <i>[Signature]</i>	Meyer			✓	
Chair: <i>[Signature]</i>	Chenault			✓	

FISCAL NOTE

STATE OF ALASKA
2005 LEGISLATIVE SESSION

Fiscal Note Number: 1
Bill Version: CSHB 155(JUD)
(H) Publish Date: 3/3/05

Revision Date/Time (Note if correction): _____ Dept. Affected: LAW
Title "An Act relating to youth courts and to the RDU CRIMINAL
recommended use of criminal fines to fund activities..." Component Criminal Justice Litigation
Sponsor Representative Samuels
Requester House Judiciary Component No. _____

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personal Services						
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0

CAPITAL EXPENDITURES						
-----------------------------	--	--	--	--	--	--

CHANGE IN REVENUES ()						
-------------------------------	--	--	--	--	--	--

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other (Specify Type--Do not abbreviate)						
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY2005) cost: 0.0

Mark this box (X) if funding for this bill is included in the Governor's FY 2006 budget proposal:

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: (Attach a separate page if necessary)

This bill amends AS 12.55.035 in the Code of Criminal Procedure by adding a requirement that fines collected shall be separately accounted for as general fund program receipts. The Department of Law already accounts for the receipts this way. Additionally, the bill allows the legislature to appropriate 25% of the criminal fines collected to fund youth courts in Alaska. The Department of Law also relies on these funds to help pay for its Collections unit in the Civil Division. The FY 2005 level of that appropriation is \$306,800 and our FY 2006 funding request is \$324,800. Based on FY 2004 actuals, approximately \$1.2 million in fines was collected by the unit, so at least for now, sufficient funds appear to be available to satisfy a 25% appropriation without jeopardizing the Department of Law's funding. We therefore do not anticipate a fiscal impact from passage of this legislation.

Prepared by: Kathryn Daughheteo, Director Phone 465-3673
Division: Administrative Services Division Date/Time 3/1/05 1:48 PM
Approved by: K. Daughheteo for Scott Nordstrand, Acting Attorney General Date 3/1/2005
Agency: Department of Law

FISCAL NOTE

STATE OF ALASKA
2005 LEGISLATIVE SESSION

Fiscal Note Number: _____
 Bill Version: HB155CS(JUD)-DHSS-DJJ-03-14-05

Revision Date/Time (Note if correction): _____
 Title RELATING TO YOUTH COURTS AND
CRIMINAL FINES

() Publish Date: _____
 Dept. Affected: Health & Social Services

Sponsor SAMUELS
 Requester HOUSE (FIN)

RDU Juvenile Justice
 Component Probation Services

Component No. 2134

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personal Services						
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0

CAPITAL EXPENDITURES						
-----------------------------	--	--	--	--	--	--

CHANGE IN REVENUES (0)						
-------------------------------	--	--	--	--	--	--

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1037 GF/Mental Health						
Other(Specify Type-do not abbreviate)						
Other(Specify Type-do not abbreviate)						
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY2005) cost: _____
 Mark this box (X) if funding for this bill is included in the Governor's FY 2006 budget proposal:

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: (Attach a separate page if necessary)

This fiscal note is based on the assumption that the Legislature wants to appropriate 25% of the fines collected from the Alaska Court System to help fund youth courts in Alaska as this legislation would allow.

On this fiscal note, the Division is reflecting A \$0.0 impact in FY06 and an indeterminate amount for the following fiscal years.

Prepared by: Patty Ware, Director Phone 465-2112
 Division Juvenile Justice Date/Time 03/11/2005
 Approved by: Joel S. Gilbertson, Commissioner Date 03/14/2005
 Agency Department of Health and Social Services



REPRESENTATIVE RALPH SAMUELS

HOUSE DISTRICT 29

CS HB 155 (JUD)

SPONSOR STATEMENT

"An Act relating to funding for youth courts; and relating to separately accounting for fines imposed on and collected from defendants."

HB 155 would create a separate accounting mechanism for fines collected by the Alaska Court system in criminal judgments and would authorize the legislature to appropriate up to 25% of those collected fines either directly to local youth courts or to the United Youth Courts of Alaska for distribution to local youth courts.

Currently youth courts operate in fourteen communities throughout Alaska: Anchorage, Delta Junction, Fairbanks, Homer, Juneau, Kake, Kenai, Ketchikan, Kodiak, Kotzebue, Mat-Su, Nome, Sitka and Wrangell. The Anchorage Youth Court, established in 1989, is the oldest of the programs. In the first two quarters of the current fiscal year, there have been 471 youth offenders referred to these programs, 397 adjudications, and 8,833 hours of community service and \$7,502.00 in restitution ordered.

Since 1989, 4,049 cases have been referred to the Anchorage Youth Court alone. These youth offenders have completed a total of 85,576 community work service hours and paid \$68,300.00 in restitution to victims. These programs, while unique in their own ways, are working. A 2002 Urban Institute study found that only 6% of offenders going through the Anchorage Youth Court re-offend -- by far the best percentage of any court in the study.

Most of the youth offenses prosecuted by local youth courts would otherwise go unpunished because of limited resources of the traditional court system. Failure to intervene and hold first time offenders accountable for their illegal acts results in more frequent and serious juvenile crimes in the future. Youth courts provide an effective avenue to intervene early with young offenders and set them on the right track to deter them from becoming adult offenders.

HB 155 will provide a way for the legislature to annually allocate funds to support this effective, worthwhile, and cost efficient program.

Email: Representative_Ralph_Samuels@legis.state.ak.us

Session: Alaska State Capitol, Juneau, Alaska 99501-4182 • Phone: (907) 465-2095 Fax: (907) 465-5110
Interim: 716 W. 4th Ave., Anchorage, Alaska 99501-2131 • Phone: (907) 260-0240 Fax: (907) 260-0242

FISCAL NOTE

STATE OF ALASKA
2005 LEGISLATIVE SESSION

Fiscal Note Number: _____
 Bill Version: HB155CS(JUD)-DHSS-DJJ-03-14-05

Revision Date/Time (None if correction): _____
 Title RELATING TO YOUTH COURTS AND
CRIMINAL FINES

() Publish Date: _____
 Dept. Affected: Health & Social Services

Sponsor SAMUELS
 Requester HOUSE (FIN)

RDU Juvenile Justice
 Component Probation Services

Component No. 2134

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personal Services						
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0

CAPITAL EXPENDITURES						
-----------------------------	--	--	--	--	--	--

CHANGE IN REVENUES (0)						
-------------------------------	--	--	--	--	--	--

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1037 GF/Mental Health						
Other(Specify Type-do not abbreviate)						
Other(Specify Type-do not abbreviate)						
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY2005) cost: _____

Mark this box (X) if funding for this bill is included in the Governor's FY 2006 budget proposal:

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: (Attach a separate page if necessary)

This fiscal note is based on the assumption that the Legislature wants to appropriate 25% of the fines collected from the Alaska Court System to help fund youth courts in Alaska as this legislation would allow.

On this fiscal note, the Division is reflecting A \$0.0 impact in FY06 and an indeterminate amount for the following fiscal years.

Prepared by: Patty Ware, Director
 Division: Juvenile Justice
 Approved by: Joel S. Gilbertson, Commissioner
 Agency: Department of Health and Social Services

Phone 465-2112
 Date/Time 03/11/2005
 Date 03/14/2005

LEGAL SERVICES

DIVISION OF LEGAL AND RESEARCH SERVICES
LEGISLATIVE AFFAIRS AGENCY
STATE OF ALASKA

(907) 465-3867 or 465-2450
FAX (907) 465-2029
Mail Stop 3101

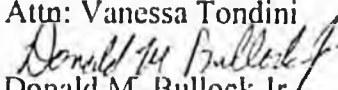
State Capitol
Juneau, Alaska 99801-1182
Deliveries to: 129 6th St., Rm. 329

MEMORANDUM

March 3, 2005

SUBJECT: CSHB 155(JUD) including amendments
(Work Order No. 24-LS0614\F)

TO: Representative Lesil McGuire
Attn: Vanessa Tondini

FROM: 
Donald M. Bullock Jr.
Legislative Counsel

Enclosed is CSHB 155(JUD). This version includes two changes made in committee.

First, the title has been shortened to cover the funding for youth courts in sec. 2 and the accounting for fines imposed and collected under AS 12.55.035.

Second, in addition to the language deleted by Representative Gruenberg's amendment #1, additional language is deleted through the end of the sentence. The additional language was deleted to conform to the amendment that deleted the reference to the United Youth Courts of Alaska.

If I may be of further assistance, please advise.

DMB:jad
05-135.jad

Enclosure

Vanessa Tondini

To: Doug Wooliver

Subject: RE: HB 155

From: Doug Wooliver [mailto:dwooliver@courts.state.ak.us]

Sent: Friday, February 25, 2005 11:41 AM

To: Vanessa Tondini; Sara Nielsen

Subject: HB 155

Hello, Vanessa and Sara. This is just to put in writing what I tried to explain to Vanessa earlier this morning. I doubt that I was very clear.

The court system can track criminal fines as a separate category in those locations where our new computer system is operational. So far that means Palmer, Anchorage and Fairbanks. The bill poses no problems for us in those locations. The problem is in the other areas that have yet to get the new system. In those locations our old computer system tracks fines along with forfeitures. We cannot separate the two. This means that we cannot separately account for fines in those locations, as required under HB 155. We have a similar problem with tracking surcharges.

What we can do is provide the legislature with an estimate of the amount of fines we collect each year. That estimate will be fairly accurate as we have a pretty good idea as to the percentage of the "fines and forfeitures" grouping that represent fines. Additionally, slightly over 50% of the fines will come from Palmer, Anchorage and Fairbanks. That means that we only have to estimate half of the fines. By the end of next year we will have more courts on the new system and our estimate will be even more accurate. Each year will get better until all of our courts are on the new system.

In 1998 the legislature passed HB 261, which dealt with surcharges. Section 10 of that bill allows us to come up with an annual estimate as to the amount of surcharges we will collect and we report that each year to the legislature. That system works well and we could do the same for fines. That is what I asked the drafter to do for the CS.

I hope that this all makes sense and that the sponsors are OK with this option. I think that it will still get you what you presumably want, which is a dollar figure for fines collected.

There is one other option that comes to mind. You could simply refer to a set percentage of the fines and forfeitures collected (our accounting category) and we could give you an exact amount each year.

Please let me know if you have any questions or concerns. I am on my way to the airport now but I will be in Anchorage on Monday (264-8265) and back in Juneau Monday night.

Doug

January 24, 2005

Senate President
Alaska State Legislature
State Capitol, Room 107
Juneau, AK 99801-1182

The 1998 session surcharge bill, SCS CSHB 261, required the court system to estimate the money collected each fiscal year from this legislation. Court system fiscal staff estimates that \$XXXX of surcharges will be collected during fiscal year 2005.

If you have any questions on this information, please contact Rhonda McLeod at 264-8215.

Very truly yours,

Stephanie J. Cole
Administrative Director

cc: _____, Alaska Police Standards Council
C. S. Christensen III, Alaska Court System

FISCAL NOTE

STATE OF ALASKA
2005 LEGISLATIVE SESSION

Fiscal Note Number: 2
Bill Version: CSHB 155(JUD)
(H) Publish Date: 3/3/05

Revision Date/Time (Note if correction): 3/1/05 5:30 p.m.

Dept. Affected: Health & Social Services

Title RELATING TO YOUTH COURTS AND
CRIMINAL FINES

RDU Juvenile Justice

Component Probation Services

Sponsor SAMUELS

Requester HOUSE (JUD)

Component No. 2134

Expenditures/Revenues

(Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personal Services	36.8	36.8	36.8	36.8	36.8	36.8
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	36.8	36.8	36.8	36.8	36.8	36.8

CAPITAL EXPENDITURES						
-----------------------------	--	--	--	--	--	--

CHANGE IN REVENUES (0)						
-------------------------------	--	--	--	--	--	--

FUND SOURCE

(Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF	36.8	36.8	36.8	36.8	36.8	36.8
1037 GF/Mental Health						
Other (Specify Type-do not abbreviate)						
Other (Specify Type-do not abbreviate)						
TOTAL	36.8	36.8	36.8	36.8	36.8	36.8

Estimate of any current year (FY 2005) cost: _____

Mark this box (X) if funding for this bill is included in the Governor's FY 2006 budget proposal:

POSITIONS

Full-time						
Part-time	1	1	1	1	1	1
Temporary						

ANALYSIS: (Attach a separate page if necessary)

This fiscal note is based on the assumption that the Legislature wants to appropriate 25% of the fines collected from the Alaska Court System to help fund youth courts in Alaska as this legislation would allow.

Currently, an Associate Coordinator position within the Director's Office of the Division of Juvenile Justice manages the youth court grants that currently exist. On this fiscal note, the Division is reflecting the proposed appropriation of a .5 FTE at this same level. Based on the estimated 35 additional grants that would be incurred for this Division, it has been determined that an additional part-time position would need to be established to absorb the additional workload.

Prepared by: Patty Ware
Division: Juvenile Justice
Approved by: Joel S. Gilbertson, Commissioner
Agency: Department of Health and Social Services

Phone: 465-2112
Date/Time: 03/01/2005
Date: 03/02/2005

Axexed 3/14/05



Alaska State Legislature

Please enter into the record my testimony to the House Finance
COMMITTEE NAME

committee on HB 155, dated 3/14/05
BILL / SUBJECT TODAY'S DATE

My name is Virginia Espenshade. I've been executive director of Kenai Peninsula Youth Court for 8 years. I am here today on my lunch hour, to lend my support to this bill as amended by the House Judiciary Committee, for the same reasons as outlined in the sponsor's statement. Our program handled 146 referrals last fiscal year and we are on pace to hear more than 150 cases this fiscal year. I would also add that for the past two years the state has increased our responsibility to include the victims in our hearings whenever possible, in recognition of the issues raised about victims feeling left out of all juvenile matters.

Signed: Virginia Espenshade
TESTIFIER (Signed, PRINTED NAME)

REPRESENTING Self and Kenai Peninsula Youth Court

ADDRESS P.O. Box 1752 Homer, AK 99603

PHONE NO (907) 235-1823

HB

155

SFIN

FILE

HB 155

was referred to the
Senate Finance
Committee

Hearing(s) were held

The bill did not move
from Committee

Amendment #1
conceptual

24-LS0614\F
adopted 5/2/05

CS FOR HOUSE BILL NO. 155(JUD) Sponsored by
IN THE LEGISLATURE OF THE STATE OF ALASKA Sen. Wilken
TWENTY-FOURTH LEGISLATURE - FIRST SESSION

BY THE HOUSE JUDICIARY COMMITTEE

Offered: 3/3/05
Referred: Finance

Sponsor(s): REPRESENTATIVES SAMUELS, Wilson, McGuire, Hoim, LeDoux, Hawker, Harris, Anderson,
Croft, Seaton

A BILL

FOR AN ACT ENTITLED

1 "An Act relating to funding for youth courts; and relating to separately accounting for
2 fines imposed on and collected from defendants."

3 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

4 * Section 1. AS 12.55.035 is amended by adding a new subsection to read:

5 (g) Fines imposed and collected under this section shall be separately
6 accounted for under AS 37.05.142.

7 * Sec. 2. AS 47.12 is amended by adding a new section to article 3 to read:

8 Sec. 47.12.410. Funding for youth courts. The legislature may appropriate
9 up to 25 percent of the fines imposed under AS 12.55.035 and collected and separately
10 accounted for by the state under AS 37.05.142 to the department for distribution to
11 youth courts established and operating under AS 47.12.400. Nothing in this section
12 creates a dedicated fund.

13 * Sec. 3. The uncodified law of the State of Alaska is amended by adding a new section to
14 read:

1 TRANSITION. Notwithstanding the requirements of AS 12.55.035(g), enacted by
2 sec. 1 of this Act, and AS 47.12.410, enacted by sec. 2 of this Act, that fines collected under
3 AS 12.55.035 be accounted for separately, the Alaska Court System shall deposit money
4 collected under AS 12.55.035 in the general fund and shall, by February 1 of each year,
5 provide to the Department of Administration, to the Legislative Budget and Audit Committee,
6 and to each house of the legislature an estimate of the money collected under AS 12.55.035
7 for that fiscal year.

8 * Sec. 4. Section 3 of this Act is repealed on the date that the Alaska Court System has the
9 capability to separately track and account electronically for money collected under
10 AS 12.55.035. The executive director of the Alaska Court System shall notify the lieutenant
11 governor and the revisor of statutes when the electronic capability described in this section
12 has been obtained.



REPRESENTATIVE RALPH SAMUELS

HOUSE DISTRICT 29

CS HB 155 (JUD)

SPONSOR STATEMENT

"An Act relating to funding for youth courts; and relating to separately accounting for fines imposed on and collected from defendants."

HB 155 would create a separate accounting mechanism for fines collected by the Alaska Court system in criminal judgments and would authorize the legislature to appropriate up to 25% of those collected fines either directly to local youth courts or to the United Youth Courts of Alaska for distribution to local youth courts.

Currently youth courts operate in fourteen communities throughout Alaska: Anchorage, Delta Junction, Fairbanks, Homer, Juneau, Kake, Kenai, Ketchikan, Kodiak, Kotzebue, Mat-Su, Nome, Sitka and Wrangell. The Anchorage Youth Court, established in 1989, is the oldest of the programs. In the first two quarters of the current fiscal year, there have been 471 youth offenders referred to these programs, and 8,833 hours of community service and \$7,502.00 in restitution ordered.

Since 1989, 4,049 cases have been referred to the Anchorage Youth Court alone. These youth offenders have completed a total of 85,576 community work service hours and paid \$68,300.00 in restitution to victims. These programs, while unique in their own ways, are working. A 2002 Urban Institute study found that only 6% of offenders going through the Anchorage Youth Court re-offend -- by far the best percentage of any court in the study.

First time offenders not held accountable for their illegal acts results in more frequent and serious juvenile crimes in the future. Youth courts provide an effective avenue to intervene early with young offenders and set them on the right track to deter them from becoming adult offenders.

HB 155 will provide a way for the legislature to annually allocate funds to support this effective, worthwhile, and cost efficient program.

Email: Representative_Ralph_Samuels@legis.state.ak.us

Session: Alaska State Capitol, Juneau, Alaska 99801-1182 • Phone: (907) 465-2095 Fax: (907) 465-3810
Interim: 716 W. 4th Ave., Anchorage, Alaska 99501-2133 • Phone: (907) 269-0240 Fax: (907) 269-0242

SENATE COMMITTEE REPORT

DATE: 3/22/05

FURTHER: Finance

DATE TURNED
IN TO OFFICE: 4/15/05

Judiciary Committee considered CS FOR HOUSE BILL NO. 155(JUD)

HB 155 YOUTH COURTS AND CRIMINAL FINES

"An Act relating to funding for youth courts; and relating to separately accounting for fines imposed on and collected from defendants."

and recommends:

- be replaced with _____ CS _____ (_____)
- adopt previous _____ CS _____ (_____)
- attached amendment(s)
- adopt Letter of Intent by _____ Committee
- further referral to _____ Committee

CS Senate Bill:

- Same Title
- New Title

SCS House Bill:

- Same Title
- Technical Title Change
- New Title w/ SCR # _____

NEW FISCAL NOTE(S):

Department	Date	Fiscal	Indet.	Zero	FN#

PREVIOUS FISCAL NOTE(S):

Department	Date	Fiscal	Indet.	Zero	FN#
LAW	3/1			✓	1
HSS	3/14			✓	3

APPROPRIATION - no fiscal note

SIGNATURES AND RECOMMENDATIONS:	Do PASS	Do NOT PASS	No REC	AMEND
French <i>[Signature]</i>	X			
Gness <i>[Signature]</i>	X			
Therriault <i>[Signature]</i>	X			
Huggins <i>[Signature]</i>	X			
Seelins CHAIR: <i>[Signature]</i>	✓			