

*THE*

# TECHNIGRAM

March 2014

JOURNAL OF THE CALIFORNIA SOCIETY OF RADIOLOGIC TECHNOLOGISTS



**Diamond Jubilee**

**SAVE THE DATE November 8-9, 2014**

**75 Years of Bridging the Past to the Future**

MARCH 2014

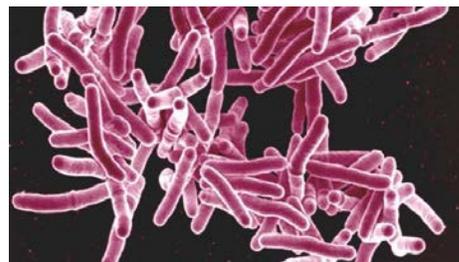
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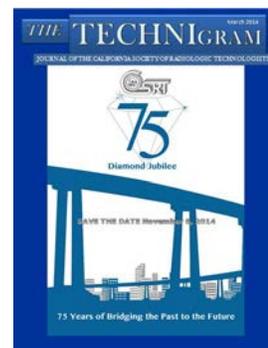
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**ON THE COVER:** 75 Years of bridging the past to the future.

# THE TECHNIGRAM

JOURNAL OF THE CALIFORNIA SOCIETY OF RADIOLOGIC TECHNOLOGISTS

## EDITORIAL

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## ***PRESIDENT'S MESSAGE***

March 2014

For me, March is advocacy month. Because of attending many RT in DC events over the past several years, the topic is on my mind a lot during March. It is also a time of renewal with spring soon around the corner. It is a time of renewing our own advocacy plans at CSRT and revising our efforts for both the state of California and nationwide.

I have often been asked the question "What can the CSRT do for me?" It's an interesting question, because in my opinion the CSRT are it's members. The CSRT is not the business office or the board of directors only. We are an organization of RT professionals, educators and students of radiologic technology. **We** are the voices of advocacy. So the better question is "**What can we do for the profession?**"

Wikipedia defines advocacy as "a political process by an individual or group which aims to influence public-policy and resource allocation decisions within political, economic, and social systems and institutions."

Advocacy as it relates to healthcare helps to support and promote patient's health care rights and services. The goal is to assist in improving healthcare in our community and policies whose main goal is in the availability, safety and quality of care.

Presently, CSRT is looking mechanisms to advocate for our profession and the patients that we take care of. Some of our many options include media campaigns, surveys, grassroots organizing and lobbying specific groups or persons. Lobbying is a form of advocacy where one approaches a legislator or other representative on an important issue.

The opportunity exists for joining together and making our presence known. The opportunity exists for us to educate the public about our profession, what we do and why it is important to patients and their providers. In this day and age of electronic media, social media and the ease with which messages can be transmitted, it seems a good time to use technology and connect with our peers to make ourselves known.

Lorenza Clausen, CRT, RT(R)(CT)(MR), ARRT  
President, CSRT

## Help Wanted

For anyone interested in participating with the editorial preparation of the Technigram, an opportunity exists. The Technigram is published quarterly and is the official journal of the California Society of Radiologic Technologists. Interested applicants should have some experience in writing or journalism, and with a working knowledge of English grammar. Graphic arts experience desirable but not mandatory.

Interested applicants for this volunteer position please reply to [email@csrt.org](mailto:email@csrt.org)

### Upcoming Events

#### **RTCC Spring Meeting**

Wednesday, April 2, 2014  
Location: DoubleTree by Hilton Los Angeles Downtown, Los Angeles, CA 90012

#### **CSRT Northridge Seminar**

Saturday, May 3, 2014  
Location: Northridge, CA

#### **The Latest and Greatest VII**

Saturday, September 6, 2014  
Location: Sutter Medical Center, Sacramento, CA 95816

#### **Venipuncture Course**

Saturday, September 6, 2014  
Location: Sacramento, CA

#### **RTCC Fall Meeting**

Wednesday, October 29, 2014  
Location: TBA

#### **75<sup>th</sup> Annual Conference**

Saturday and Sunday  
November 8-9, 2014  
Location: Liberty Station  
Conference Center, San Diego CA

## National and State Legislative News

Lorenza Clausen, RT(R)(CT)(MR), ARRT, CRT Legislative Chair

The CSRT is working on state advocacy issues as one of the goals for the current year. CSRT was accepted into the new **Affiliate Advocacy Program** by the **ASRT**. The goal of this new program is to assist affiliates with developing a state advocacy program or enhancing an already existing one. The CSRT board recently met with ASRT representatives in February on its first conference call to set goals and strategies. Once the action plan is formalized, CSRT will begin to work on several areas of increased advocacy for the state.

**CSRT is looking for RTs and students interested to volunteer on its legislative committee.** The committee will primarily focus on forming a more robust committee, create a grassroots network within the state and plan events to educate the technologists and legislative representatives. Information will be collected to assist technologists and students understand the role legislative action plays in our regulations and profession.

Other plans will focus on educating the legislature about medical imaging and what we do, how we protect patients and the important role we play. Additionally, improving information and layout on the CSRT website regarding legislation updates, regulatory information and how to contact your representatives are also planned. If anyone is interested in lending talents in this area, please contact the CSRT at [email@csrt.org](mailto:email@csrt.org)

Some of the benefits as part of the ASRT AAP include planning an advocacy day at the state capitol. Several states have already sponsored RT to the Capitol events to lobby for state licensure in their respective states. Our goal is to educate both RTs and students on the legislative process and its role in bringing about licensure and its related regulations. Look for more information to come regarding the **RT to Sacramento** event being planned. Info will be posted on our website at [www.csrt.org](http://www.csrt.org)

### **The Joint Commission releases revisions to its Diagnostic Imaging requirements**

The biggest news to come out in December came from the **Joint Commission**. After having requested public input on many revisions to its requirements, the changes for Diagnostic Imaging were rolled out in December, slated to take effect in July 2014 and July 2015.

Changes announced related to CT, MR and Nuclear Medicine. Education, credentials and safety training were some of the areas targeted. The changes affect ambulatory care, hospital and critical access facilities accredited by them. Some of those changes are:

+RTs who perform CT must be registered by the ARRT or certified by the NMTCB by July 1, 2015.

+RTs who perform CT must do continuing education related to radiation dose reduction techniques spearheaded by the Image Gently and Image Wisely initiatives.

+RTs who perform MR must include annual education on safe MR practices in the MR environment.

What is interesting to note is that the CT credential was not specified at this time and the number of hours of education requested not stipulated. As the year unfolds, more announcements may come from

the Joint Commission related to these and other revisions yet to come. For more information use the following link:

[http://www.jointcommission.org/joint\\_commission\\_announces\\_new\\_and\\_revised\\_diagnostic\\_imaging\\_standards/](http://www.jointcommission.org/joint_commission_announces_new_and_revised_diagnostic_imaging_standards/)

### **ASRT RT TO DC and Virtual March**

RTs and student RTs will attend the annual ASRT **RT to DC** event in Washington this month. The group will march on Capitol Hill on March 18, 2014, the 16<sup>th</sup> year of the event, to again promote the imaging profession and the importance of the CARE and MARCA bills both related to quality, access and safety. The CARE and MARCA bills are both in the House, having been introduced in 2013, shortly after the 2013 RT to DC campaign. The CARE bill is also in the Senate. For those of us who are unable to attend the meeting in Washington, we can all still participate with the **Virtual March**. Collect your friends, family and colleagues and join the rest of us in contacting our representatives. You can find information to sign up at the following link: <http://www.asrt.org/events-and-conferences/rt-in-dc>

The **CARE** bill is residing in two House committees, the Energy and Commerce and the Ways and Means. There has been no movement out of the committees since the last report. Other issues seem to occupy the minds of Washington and with this year an election year, the push for passing legislation is even more important now as the year moves closer to the month of November.

The current cosponsors list for **HR 1416** stands at 68 with 5 of them from California. Please contact their offices and thank them for their support. There are no new additions from our state.

Congresswoman Maxine Waters (D-CA-43) (most recent cosponsor in October)  
 Congressman Thompson (D-CA-5)  
 Congresswoman Eshoo (D-CA-14)  
 Congresswoman Speier (D-CA-18)  
 Congressman Ruiz (D-CA-36)

The remaining congressional offices still need to be contacted and asked for their support. Many have been prior cosponsors in previous congresses.

<http://beta.congress.gov/bill/113th-congress/house-bill/1146>

The **Senate CARE bill, S 642**, is the companion to the CARE bill in the House. There are currently 7 cosponsors with neither of the California senators yet on the list. Please continue to contact their offices, stress the importance of their support on this important bill and request their support as a cosponsor.

<http://beta.congress.gov/bill/113th-congress/senate-bill/642>

**HR 1148, MARCA**, is also important for the Radiologist Assistant and its position in healthcare. Current cosponsor list stands at 40 with two California representatives.

Congressman Farr (D-CA-18)    Congresswoman Eshoo (D-CA-20)

<http://beta.congress.gov/bill/113th-congress/house-bill/1148>

**HR 991- CT Colonography Screening** introduced March 6, 2013 by Rep. R. Hall (R-TX-4) that would provide Medicare coverage for colorectal cancer screening with CT. There are currently 5 cosponsors and is residing in the Subcommittee on Health. There are currently no California cosponsors.

<http://beta.congress.gov/bill/113th/house-bill/991>

Breast Density Legislation has been a popular topic in many states. Several states have passed their own state specific bills. Congress has introduced **H.R. 3404, The Breast Density and Mammography Reporting Act**, introduced by Representatives Rosa DeLauro, (D-Conn-3) and Steve Israel, (D-N.Y.-3). **The Breast Density and Mammography Reporting Act** would require notification by providers to their patients who have dense breast tissue. Additional screening tests may be recommended to help those patients who may have an increased risk of breast cancer or missed cancers with dense breast tissue. Introduced on October 30, 2013, there are currently 30 cosponsors, including a new addition from California, bringing the total to two. This is the second attempt, after having introduced a similar bill last year in the 112<sup>th</sup> Congress.

Adam Schiff (D-CA-28)      Alan Lowenthal (D-CA-47)

<http://beta.congress.gov/bill/113th-congress/house-bill/3404>

There are currently 14 states that have passed Breast Density Laws, the most recent being New Jersey in February. Pennsylvania, North Carolina, Tennessee, Alabama, Nevada and Oregon were also recently added. Connecticut was the first state to enact such a law, with Texas, Virginia, California, New York, Hawaii and Maryland following close behind.

ASRT Advocacy Action Center makes it easy to contact your representatives about any of these bills or others you may wish to express your position on to them

<http://cqrcengage.com/asrt/?3>

## What is the Radiation Health Branch (RHB) and what do they do?

Diane R. Garcia, MS, RT(R)(CT),CRT

The Radiologic Health Branch (RHB) is within the Food, Drug, and Radiation Safety Division of the Department of Public Health. The Branch enforces the laws and regulations indicated below designed to protect the public, radiation workers, and the environment. The RHB is responsible for providing public health functions associated with administering a radiation control program. This includes licensing of radioactive materials, registration of X-ray-producing machines, certification of medical and industrial X-ray and radioactive material users, inspection of facilities using radiation, investigation of radiation incidents, and surveillance of radioactive contamination in the environment.

- The RHB administers and enforces the following laws and implementing regulations:
- Radiation Control Law (Health & Safety Code Sec. 114960 et seq.)
- Radiologic Technology Act (Health & Safety Code Sec. 27(f).)
- Nuclear Medicine Technology Certification (Health & Safety Code Secs. 107150 through 107175.)
- Regulations implementing the above laws are in Title 17, California Code of Regulations, Division 1, Chapter 5, Subchapters 4.0, 4.5, & 4.7.

(Obtained from the RHB website- <http://www.cdph.ca.gov/programs/pages/radiologichealthbranch.aspx>)

### What is the Radiologic Technology Certification Committee (RTCC)?

The Radiologic Technology Certification Committee (RTCC), is a committee which assists, advises, and makes recommendations for the establishment of regulations necessary to insure the proper administration and enforcement of the Radiologic Technology Act.

RTCC members are appointed by the California Department of Public Health (CDPH) Director and is composed of:

- Six physicians and surgeons licensed to practice medicine in this state, three of whom shall be certified in radiology by the American Board of Radiology. At least one of the radiologists shall be representative of the hospital practice of radiology.
- Two persons with at least five years' experience in the practice of radiologic technology. At least one of these persons shall be representative of the hospital practice of radiologic technology.
- One radiological physicist, qualified in the use of physics in the practice of medicine.
- One podiatrist licensed to practice podiatry in this state.
- One chiropractic practitioner licensed to practice chiropractic in this state.

(Obtained from the RHB website-<http://www.cdph.ca.gov/services/boards/Pages/RTCC.aspx>)

### Requirements for Continuing Education in Radiologic Technology.

The continuing education (CE) credits and continuing experience required to renew permits and certificates in radiologic technology are specified in title 17, California Code of Regulation (17 CCR), section 30403. The Radiologic Health Branch does not have a program to provide continuing education credits and does not credential providers of continuing education.

An “approved continuing education credit” means 50 - 60 minutes of instruction received in subjects related to the application of X-ray to the human body and accepted for purposes of credentialing, assigning professional status or certification by the following organizations:

- American Registry of Radiologic Technologists (ARRT)
- Medical Board of California
- Osteopathic Medical Board of California
- California Board of Chiropractic Examiners
- Board of Podiatric Medicine
- Dental Board of California

Please note: “Subjects related to the application of X-ray to the human body” may include X-ray administration, X-ray management, X-ray pathology, X-ray diagnosis and X-ray quality control. However, subjects in MRI, Ultrasound, CPR, or other topics not related to the application of X-rays to the human body cannot be accepted. It is the responsibility of the certificate or permit holder to ascertain the acceptability of courses.

The renewal form mailed to you will include space for documenting the approved CE credits you have earned. You may use the reverse side of the renewal form, if needed. Each individual is required to maintain documents that evidence the completion of approved continuing education credits for four (4) years following the dates the credits were earned. These documents must be made available to the Department upon request. [17 CCR 30403.8]

Continuing education requirements for diagnostic and therapeutic, CRTs are listed below. Mammographic CRTs have ADDITIONAL requirements.

CRTs need to earn twenty-four (24) approved CE credits, four (4) of which shall be in digital radiography, in the two years immediately preceding the expiration date of their permit.

The RHB will accept the following advanced credential certificates issued by ARRT for 24 CE credits if the certificate was issued within the two years immediately preceding the expiration date of the certificate or permit:

- Mammography\*\*
- Computerized Tomography
- Quality Management
- Bone Densitometry
- Vascular-interventional Radiography
- Cardiac-interventional Radiography
- Radiologist Assistant
- Radiation Therapy

Note: Issuance of a certificate through the State of California where a state examination was taken does not qualify for CE credits. However, training courses taken in preparation for these exams may be approved by one of the credentialing organizations listed above and therefore would qualify.

Activities meeting the definition of an ‘approved academic course’ as defined by the ARRT may be awarded CE credit at the rate of 12 CE credits for each academic quarter credit or 16 CE credits for each academic semester credit. The ‘approved academic course’ must also pertain to the application of X-ray to the human body to qualify as a CE credit for California. For more information on acceptable classes, please visit the ARRT website at [www.arrt.org](http://www.arrt.org).

The ASRT is a recognized credentialing body for continuing education activities and those activities pertaining to the application of X-ray of the human body will be acceptable to the Department.

### **Mammographic Certified Radiologic Technologists (CRT) – ADDITIONAL Requirements**

Each person who has been issued a Mammographic CRT certificate must, in the two years immediately preceding the expiration date of the certificate, must earn 10 of the 24 Approved CE credits in mammography. [17 CCR 30403(a)(1)]

\*\*The advanced credential certificate for mammography will meet the 10 CE credits specific to mammography requirement. The other advanced credentials will not meet this requirement, so additional CE credits will need to be earned specific to mammography.

### **Radiologic Technology Fluoroscopy (RTF) Permit ADDITIONAL Requirements**

• CRTs with a RTF permit are required to earn 24 approved continuing education credits; four of which are required to be in radiation safety for the clinical uses of fluoroscopy. [17 CCR 30403(a)(2)].

(Obtained from the website: <http://www.cdph.ca.gov/certlic/radquip/Pages/RHB-CEC-Renewal.aspx>)

## **Changes**

On October 11, 2013, amendments and changes to the Radiologic Technology Act regulations specified in Title 17, California Code of Regulations (17 CCR) became effective. Those changes are based upon the Radiologic Technology Certification Committee’s (RTCC) recommendations. **These new Continuing Education (CE) credit requirements will be enforced beginning July 1, 2016.**

A summary of the changes to the CE credit requirements are as follows:

- Limited Permit X-ray Technicians (XTs) with digital authorization and all Certified Radiologic Technologists (CRTs) need to earn a minimum of 24 approved CE credits, four (4) of which are in digital radiography, in the two years prior to the expiration of their certificate/permit.
- CRTs with a mammography certificate need 24 approved CE credits, with 10 CE credits that are specific to mammography.
- CRTs with a fluoroscopy permit need 24 approved CE credits, with 4 CE credits that apply to radiation safety for the clinical uses of fluoroscopy.
- Any of the mammography or fluoroscopy CE credits that you have obtained that are related to digital radiography may be used to satisfy the 4 digital radiography CE requirements.
- Certified Supervisors and Operators (California licensed physicians and surgeons, podiatrists, or chiropractors) need to earn 10 approved CE credits in the 2 years prior to the expiration of their certificate/permit. If a Licentiate holds a fluoroscopy supervisor and operator permit, 4 of the 10 CE

credits shall be in radiation safety for the clinical uses of fluoroscopy. Proof of completed CE credits must be retained for 4 years and must be made available to the Department upon request.

(Obtained from the website: <http://www.cdph.ca.gov/programs/pages/radiologichealthbranch.aspx> Under “What’s New” *New Continuing Education requirements: Information Notice-2/19/14*)

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## **Registration vs. Certification - The Joys of Continuing Education**

Lorenza Clausen, CRT, RT(R)(CT)(MR), ARRT  
President, CSRT

Continuing education or more commonly CE, can be a confusing or stressful issue for many of us. For others, it seems an annoyance and just “something I have to do”. However, continuing education is required and like all other licensed healthcare personnel, the ongoing education is meant to help us keep up with the changes of technology and standards of practice not available to us during our initial course of study. Physicians, nurses and respiratory care practitioners are some of the other individuals charged with ongoing continuing education for renewal. We are not alone.

Keeping up with those changes in regulations for the state license or certification and national certification can be challenging. State regulatory and certification board websites are the best place to find information, but our professional organizations are constantly monitoring the changes and posting information for its members. Finding the appropriate CE and the time to complete that education can also be difficult given our work schedules and personal responsibilities. Many certification boards such as the ARRT, send out annual review newsletters to keep registrants up to date.

During my career I have often heard confusion between the terms certification, licensure and registration. They are not the same, each has a different meaning. Continuing education applies to registration and in some cases licensure. While we did prepare for and pass a national board certifying exam after completing our radiography programs, we were only initially “certified”. **Certification**, as defined in Wikipedia, is “to guarantee formally that certain requirements based on expert knowledge of significant, pertinent facts have been met”. With this certification we were prepared at the required minimum level to perform those examinations and procedures that we are certified to do.

In our case, we are certified by the ARRT to be members of their registry. **Registration** is the recording of professional qualifications that are relevant to the government or state licensing regulations. Registration is initially recorded after passing our certification exam. It is also recorded each time we renew our certification at the end of each biennium. The continuing education that we complete during our biennium maintains our qualifications for the registry.

Wikipedia defines **licensure** as “the state or condition of having a license granted by official or legal authority to perform medical acts and procedures not permitted by persons without such a license”. Licensure is derived from Latin *licere* meaning “to be allowed”. This licensure is usually granted for us to perform a certain activity that is otherwise illegal without the license. It is typically granted based on completion of education and an examination and not on performance. It is permanently granted, but demonstration of ongoing competence or continuing education may be required. Licensure can be revoked by the agency granting the license if there is some incompetence, criminal act or other rules that have not been met stipulated in the regulations. As with our state certification, the ARRT also has a probationary or revocation process in place for similar situations.

California is one of a handful of states with their own certification requirements in addition to the ARRT. While the state does accept the ARRT to apply for the California certificate, the state mandates that all technologists hold the CRT to work in the state. One cannot possess only the ARRT. Other states such as Florida, Texas and several on the east coast have similar requirements. Prior to 2000, the state required two examinations for RTs, the ARRT and the California exam. Since 2000, the ARRT is the examination that fulfills California requirements for certification. A fee is paid for the CRT certificate and must be in compliance to be valid.

Now that continuing education has been mentioned as it relates to licensure and registration, we can see how CE comes into play in those areas. Our certificate is renewed every two years in California. The ARRT is renewed yearly, but CE must only be demonstrated every two years. That continued renewal is designed to ensure that we maintain those skills acquired during our initial training, but that we have also kept up with the changes in technology, equipment and standard of care.

There have been many changes over the past several decades regarding technology, equipment and the standard of care. Therefore, continuing education is lifelong learning; it can not end. **Lifelong learning** is the ongoing, voluntary and self-motivated pursuit of knowledge for either personal or professional reasons. It enhances our personal development and should reflect our current areas of practice. In some cases, CE is required for registration, certification, or licensure renewal, both state and federal.

Historically, California did not initially have continuing education for CRTs. In fact, when I completed my initial certification in 1996, I was only obligated to complete CEUs for the ARRT renewal at the end of my biennium. That all changed as of November 28, 2001, California began requiring its technologists to complete 24 units every two years. California is somewhat more specific on its requirements for renewal. As listed in the Radiologic Technology Act regulations specified in Title 17, California Code of Regulations (17 CCR), section 30403, CEU subjects must be “**related to the application of X-ray to the human body**” and may include **X-ray administration, X-ray management, X-ray pathology, X-ray diagnosis and X-ray quality control**. Furthermore, subjects in MRI, Ultrasound, CPR, or other topics not related to the application of X-rays to the human body cannot be accepted. It is the responsibility of the certificate or permit holder to verify that the courses chosen meet California requirements.

This has been a source of frustration at times, as it does not duplicate what the ARRT allows for its renewal. In fact, the easiest option would be to select subject matter accepted by the State of California, because that CE is automatically accepted by the ARRT without question. Another disparity is that your biennium period for the ARRT may differ from the California CRT period for renewal. The ARRT sets your

biennium from the 1<sup>st</sup> of your birth month, whereas the state of California is set based on initial certification. I was certified in June of 1996 for California and follow a 24 month biennium beginning in the month of June. The ARRT tracks my CEU beginning in October, my birth month, even though I certified initially in July.

California recently underwent some revisions to its regulations after several years of review and revision by the RTCC and its subcommittees. The most recent changes to our continuing education requirements came at the end of last year, approved by the RTCC on October 11, 2013.

**These new Continuing Education (CE) credit requirements will be enforced beginning July 1, 2016.** The RHB will send notices of this change with technologist renewals allowing for two years notice of the new changes. A summary of the new changes for all categories is as follows:

1. Limited Permit X-ray Technicians (XTs) with digital authorization and all Certified Radiologic Technologists (CRTs) need to earn a minimum of 24 approved CE credits, four (4) of which are in digital radiography, in the two years prior to the expiration of their certificate/permit.
2. CRTs with a mammography certificate need 24 approved CE credits, with 10 CE credits that are specific to mammography.
3. CRTs with a fluoroscopy permit need 24 approved CE credits, with 4 CE credits that apply to radiation safety for the clinical uses of fluoroscopy.
4. Any of the mammography or fluoroscopy CE credits that you have obtained that are related to digital radiography may be used to satisfy the 4 digital radiography CE requirements.

Certified Supervisors and Operators (California licensed physicians and surgeons, podiatrists, or chiropractors) need to earn 10 approved CE credits in the 2 years prior to the expiration of their certificate/permit. If a Licentiate holds a fluoroscopy supervisor and operator permit, 4 of the 10 CE credits shall be in radiation safety for the clinical uses of fluoroscopy. Proof of completed CE credits must be retained for 4 years and must be made available to the Department upon request.

## Are you contributing to Nosocomial Infections?

David Poon, CRT, RT (R), ARRT, President Elect, CSRT

Nosocomial infections are infections that originate in a hospital or hospital-like setting. Radiologic Technologists and radiology students are well aware of the need to practice universal precautions and safe sanitary practices to help prevent these types of infections. Proper hand washing and correctly disinfecting the x-ray equipment are crucial in preventing nosocomial infections.

The Center for Disease Control and Prevention ([www.CDC.gov](http://www.CDC.gov)) estimates that nearly 2 million people acquire a clinically significant nosocomial infection every year. In addition, close to 20,000 people die from this preventable hospital acquired disease. Despite the attention this topic has received lately, persuading radiologic technologists and radiology students to practice universal precautions and safe sanitary practices is difficult.

According to the CDC, proper hand-washing/hand-sanitization is described as, "the most single most important means of preventing the spread of infection." However, many in the medical professions do not utilize this simple method of preventing the spread of disease - reasons may include:

- thinking they are too busy to wash/sanitize our hands
- misconception that the transmission of microbes is not common
- assuming that hand washing is unnecessary because the patient and the caregiver is basically "healthy" and they are not infected with any disease.
- The hospital workers are too busy to bother.
- Peer pressure from noncompliant colleagues
- Lack of good role modeling by superiors

Due to these factors, the radiology students suffer from a lack of understanding regarding their role in spreading disease. It is up to the radiologic technologist to practice universal precautions and safe sanitary practices on every case to help reinforce the educational background the student has received during the didactic portion of their education. Without this reinforcement, the bookwork is quickly forgotten. It is important for these student technologists to learn these good habits from the radiologic technologists they observe, as these infections can often lead to serious consequences for patients.

When equipment is not cleaned and disinfected regularly and properly, bacteria, viruses and other pathogens can hide in the radiology equipment. X-ray cassettes, portable x-ray machines, and examination tables can often harbor deadly diseases which may complicate and compromise a patient's original condition.

The radiology department plays a very important role in medical diagnosis. This department sees more patients in one day than just about any other department in the hospital. Radiology serves a large number of both inpatients and outpatients. As a result, of this volume of patient traffic, there is an increased chance of spreading nosocomial pathogens amongst patients and to the radiology staff.

Peer reviewed studies have linked dirty x-ray equipment to the spread of deadly nosocomial infections to patients. A study by National Nosocomial Infections Surveillance system (NNIS) found

that 33% of X-ray cassettes used for diagnostic imaging were contaminated with potential pathogens, most of which were identified as *Staphylococcus aureus*.<sup>1</sup> Another study by Radiology Magazine states, “Nosocomial infections need a vector by which to be transmitted.”<sup>2</sup> Direct contact is one of the main ways of transmitting bacteria between patients and members of the hospital staff. Bacteria such as *Klebsiella spp*, *coliform*, *Staphylococcus aureus* and *coagulase-negative Staphylococcus epidermidis*, have been found on x-ray equipment and radiology accessories.<sup>3</sup> These bacteria are potentially harmful due to their high prevalence and they can invade the body through any open route or wound.

It was found that all places where radiographers make contact with their hands such as the x-ray tube, control panel, exposure buttons, and x-ray cassettes can be lethal hiding places. Studies such as these suggest and demonstrate the potential danger for the spread of pathogens and the need for radiology students and radiologic technologists to clean and disinfect between each and every patient.

You have the power to minimize nosocomial infections and to potential cut down on patient infection rates. These preventive measures include:

- Use hospital approved gloves for each patient and dispose them after each use. Do not reuse gloves between patients and do not cross contaminate equipment while wearing dirty gloves.
- Use disposable cassette covers for exams that need cassettes. After use, dispose and sanitize the cassette to ensure effective decontamination.
- Follow your hospital/clinical protocol when it comes to proper hand-washing and the use of sanitizing hand-gels before and after touching every patient.
- X-ray equipment and accessories should be properly disinfected immediately after use and before the attending to the next patient. Clean not only the obvious equipment (e.g. cassettes, x-ray tube), but also clean the non obvious, such as: exposure button, console, door handles, chairs, key board buttons, footstool handles, etc).

We all have a duty to ensure that patients receive the best patient care. This includes radiologic technologists and radiology students observing universal/standard precautions the best sanitary practices. If you are a radiologic technologist currently working with or without students, be sure to take the information you just read to heart. Develop these good habits when working at all times.

If you are a radiology student, it is imperative that you develop these fundamental healthcare practices. By developing these good habits, we can help cut down these potentially deadly infections. Infection control is our responsibility and it is imperative that we do our best to help patients obtain optimum care.

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## From the Student Committee...



By Nav Rajan  
*Student Committee Chair*  
*CSUN BSRS Student*

As we kick off the new year the student committee has been hard at work. The committee designed a stylish new T-shirt and is selling them for \$15. 100% of the proceeds are going towards the scholarship fund for students. Get them while they're hot because they may not last long!

One of the many benefits of joining the CSRT is the mentorship and professional advocacy. This month the SC is participating in the online RT to DC campaign. The ASRT and its grass roots network is launching an e-campaign to tell your lawmakers why radiation safety and national certification is important for all Radiologic Technologists. It's very easy, you can do it in two minutes from your smart phone on Monday March 17th. Join us in the fight!! The link is below. Click on the "grass roots advocacy center" link once on the web page.

<http://www.asrt.org/events-and-conferences/rt-in-dc>

As student chair I cannot stress the importance of fighting for the profession. We all work very hard in school and as professionals. It's important to educate the public on what we do and the importance of safety. Fighting for the profession can also ensure job security for our futures. We are not just button pushers, we are future Radiologic Technologists, educated and clinically trained to use ionizing radiation.

Thanks to all the students and technologists in California for your continued support of the CSRT.

## Diary of a 4th Semester Student

Rhonda Boulland, City College of San Francisco

It's Thursday and my alarms both sound at 5:45am. I turn them both off and I'm surprised that my alarms wake me up and not my kids. My hospital shift is 8:00am to 4:30pm and I've rotated to a new hospital this semester so I'm learning new exam protocols, new equipment, and trickiest of all I'm learning how to work with a new set of radiographers.

I'm tired on this particular Thursday because my four year old son is sick and woke me up several times during the night. I wonder how my husband can sleep through the coughing, night terrors, and crying from my kids?! No time to ponder such absurd questions; I need to get ready and go. An hour later as I'm packing my lunch and getting ready to leave, my sons both emerge from their bedroom. I'm overjoyed that I can spend a minute and thirty seconds with them before I race out the door. I ignore their fussing and pleas for milk and television as I pat their thin, blonde hair that's sticking out in all directions. At one and four years old, they both still view me as someone who can meet their every need at every moment. At this moment I view them as the two most precious little bundles of love I could ever imagine that are about to make me late. Now my husband is emerging, eyes squinting, and still half asleep. I tell him "we're out of vegetables because I made a salad for lunch so you'll have to go to the store before dinner tonight. Don't forget, I have class tonight so you have to pick up the kids. Wait ... Levi was up all night coughing and he feels feverish. On second thought, you need to stay home from work because Levi's preschool director will flip out if you drop him off in that condition. Oh, and when you're getting Henry ready for the nanny-share can you give her more diapers. She's out. And don't forget to put applesauce in Henry's lunch, he's been constipated for two days. Also, check out Levi's eyes. They look so red. I think he has pink eye. Okay, bye babe, love you". My husband gets back in bed and pulls the covers over his head and pretends to cry as I walk out the door.

It's now 7:05am and I'm out the door a few minutes later than I'd like. I debate whether to listen to NPR on my way to work or to listen to a recording of my instructor's voice to prepare for an upcoming quiz. I can feel my anxiety level rise. I know I have a quiz coming up that I haven't studied for so I listen to NPR for 10 minutes then listen to my instructor for the remainder of the drive. I park 7 blocks from the hospital to save \$7 on parking, but the \$13 per day charge is another small added stress to the huge financial burden of living off of loans and one income while in the program. I stuff the financial worries in a mental file that I try not to open very often.

I arrive at the hospital and after cleaning and stocking are complete it's time for the first x-ray. The tech on duty tells me to get the order and the patient. I position the patient for an AP knee x-ray by angling the tube 5 degrees cephalad. Collimation, marker, and lead are all in order. As I turn to dart behind the lead wall, I realize that my clinical instructor and two senior techs have been watching my every move. Clearly, I've done something wrong. I'm staring at two puzzled faces and one slightly annoyed face. Note to self: this hospital doesn't want an angle on the AP knee. I erase from my memory nine months of clinical instruction at my previous hospital along with what I've learned in my positioning class and replace it with this new nugget of information. My mental hard drive is being reformatted with every move I make today and for the rest of the semester.

It's 9:00am now and I head over to fluoroscopy where I'm scheduled to be for the remainder of the day. I love fluoro because it feels like I'm part of a little clinic. I enjoy working with the radiology residents who are also on a rotation as well as the speech pathologists who come in for swallow studies. I always pick up new tidbits of information listening to the residents talk to the patients. Our

first patient will have a barium swallow study and an esophagram. The tech sets up while I watch and I notice the similarities and differences in this set up procedure compared to my base hospital. The chatty speech pathologist comes in and makes small talk with the tech while she sets up. Our patient comes in and the study begins. I try to take in every detail in hopes of getting a competency signed off the next time this type of exam comes up during my rotation. At this point I'm just trying to figure out when to put lead on, where to stand, and how not to be annoying to the tech, resident, and speech pathologist. The esophagram is over and the doctor fills the patient in on what he has just witnessed. I'm wondering if there will be overheads, but the tech motions for me to help the patient off the table and clean the room. I guess the study is over!

Our last exam of the day is a hysterosalpingogram. A female tech comes in from the x-ray department to take over. I have been signed off on this competency so I set up the room accordingly. The tech makes a few adjustments and we're ready to get the patient. I have a list of questions ready to ask the patient and I get her consent forms in order while she's changing into a gown. The patient nervously sits down. I make notes for the resident as I ask the patient several pointed questions that will give the doctor some clues as to the patient's condition when he arrives. I explain the exam and I'm extra calm and warm in my demeanor in hopes that the patient will feel a little less anxious. During the exam I ask her where she's from and about her job to get her mind off the catheter that's being inserted into her cervix. I rest my hand on her shoulder and tell her to remember to breathe at certain times during the exam. At the end of the study the patient thanks me profusely and tells me that I made the exam a "piece of cake". This makes my day and is the equivalent of a friendly reminder about why I went into this field.

The clinical portion of my day ends at 4:30pm and it's time to commute to school for my night class. I'm exhausted. I call my husband to check in. As soon as our kids realize that they don't have dad's undivided attention they begin to fuss. Trying to talk is futile. I realize that I have a quiz in my class tonight. The wave of dread washes over me. I know this feeling all too well. I've reviewed fifty pages of the hundred page chapter. For the remainder of the drive my thoughts vacillate between my odds of passing the quiz and what I can find to eat at Whole Foods for less than \$6.

With no time to change out of my scrubs, I arrive at 6pm on the dot for class. Two and a half hours go by and it feels like ten. Now it's time for the quiz. Why does the vascular system of the liver need to be so complicated? The quiz is significantly more difficult than I anticipated, but the end of the quiz means the end of class. It's time to go home at last.

My husband is asleep on the couch when I walk in at 9:30pm. The house smells like the dinner he prepared. There are clothes, shoes, toys, sippy cups, art projects, and pieces of mail everywhere. I go into my son's room. They are sleeping so perfectly. I miss them so much it hurts. I kiss their foreheads and watch them breathe. I'm always heartbroken when another day has gone by and I haven't done any of the things a parent longs to do with their children. My husband is awake now and I fall onto the couch next to him. He asks how my day was. I'm too tired to speak. He already knows this and doesn't press me for a response, but just rests his hand on mine. I simply could not be in this imaging program without his support. He is the reason it all works.

When the stress becomes overwhelming I exchange it for gratitude. Gratitude has never failed me during this journey. I could say that I'm lucky, but luck doesn't lend itself to the work that has been done so I'm just thankful each and every day for my incredible husband, my two boys, and the strength to get up and do all over again tomorrow.

## Experiences at San Francisco General Hospital

Jalil Kawas

Diagnostic Medical Imaging

City College of San Francisco

Class of Dec 2014

It was the last week of our finals after a brutal second semester in the Diagnostic Medical Imaging Program at City College of San Francisco and with just a couple days to unwind, the grind of Internship consisting of 8 hours a day/ 5 days a week was just around the corner for my classmates and me at San Francisco General Hospital (SFGH). We had often talked about where we wanted to be placed even though the decision was out of our hands. I was one that said, "I hope I go to the General. I want to get into that mayhem". When the day came that we got our clinical placement e-mail, my placement was at SFGH.

It was the day after Memorial Weekend, May of 2013, which was the first day of clinical at SFGH. I started to prepare for what would be my daily routine for the next seven weeks of "summer school", as I thought of it. I was as nervous as a child at his first day of school. SFGH requires us to start at 7:30am. My classmates and I arrived at different times but all of us arrived at the radiology department by 7:30. As I entered, I started to introduce myself to the x-ray technologists that were also arriving to start they're day. Some were approachable and some gave you the feeling they were thinking, "Great, a new batch of students to babysit". It was all good because I could understand that I was coming in "wearing diapers". Not too long after introductions, we met our assistant clinical instructor whom we followed to the break room for our orientation to our new home for the summer. We were given an introduction to the hospital and what was expected of us while we were here.

During my second week at SFGH I was shadowing the different techs accompanying them on exams to observe and assist so that I can get a feel of things and be comfortable. The time was around 2 o'clock in the afternoon, nearing the end of the day when one of the techs approached me and asked if I wanted to "check something out." I was all about being busy and I didn't want to stand around so I took a walk with the RT. As we walked I asked him where we were going and what was going on. He turned and told me, "gunshot victim". My eyes, at that moment lit up with excitement, this was my first trauma patient. We entered Room 64 which connected to Trauma 2. Each x-ray room is connected to the trauma rooms. There are windows to observe not only the patient but whatever medical emergency happens to come through the hospital. Looking through the window, the victim was a male who was shot in the chest. Most of the personnel in the emergency department converged on the room like a swarm to help this individual who was lying on the gurney in a motionless state. They stripped and cut his clothes off; they started IV's, and they intubated him with the quickness of a cheetah chasing down its prey. I couldn't move away from where I was standing because my eyes were glued to the action. Looking at the victim, I could see where the bullet penetrated him in the chest. The hospital staff was relentless in their efforts to keep this person alive.

After a few minutes of chest compressions and other life saving techniques, the chief surgeon showed up with two other doctors to assess and assist in trying to save this man's life. As I watched, the doctor was making an incision of some sort and at that moment I turned my head away for a moment to sneeze and when I looked backed, I saw that the patient's chest had been cracked open with rib splitters. It was a sight that I never seen before, one second his chest looked normal and all of a sudden ribs were sticking up in the air. The doctors then proceeded to work their hands, one at a

time, into the victim's chest. The tech was explaining to me what was happening, "The doctors were in the chest cavity massaging the heart to keep it beating while they tried to save this person."

After another few minutes of doing everything they can to revive this person, all actions were ceased. The patient was pronounced dead. I then saw others entering the trauma room. It didn't dawn on me at first why these people came in, but then I remembered that SFGH is a teaching hospital for new residents. These people were doctors in training and they were in the trauma room getting a lesson from the seasoned doctors. You could see them examining the victim from every aspect as if experiencing a new wonder of childhood. After all the student doctors had left, I remained transfixed on this person. I stayed and watched a female doctor stitched the victim's chest back together. Looking upon the aftermath, my eyes fell upon the victim's dead stare. This made me reflect on how precious life is and that life is too short for any kind of tragedy to happen. I finally walked out the room with a whole new perspective and respect for what I would be experiencing coming into this field of work.

Later that night I received an e-mail from my clinical coordinator asking us how our day in the hospital went. I proceeded to respond on what I saw today and that I have never seen anything like that before. She responded back by explaining that that is a part of life and not to let it bother me into the night. I wrote back and told her that it didn't bother me. This day in the hospital was real-life and the events of the day made me think about my own life. I thought about that patient too. He will never see his family again; his family will be grieving for the loss that they just encountered. All of the lives he touched would feel his loss. This was a part of life.

I could never have imagined that my first day in the clinical environment would begin with that experience. Though shaken, I was equally as excited to get back to SFGH the next morning and start learning to becoming a radiologic technologist. I want to be a technologist who makes a difference in a person's life by the work I will do on a daily basis. I have always taken my education seriously but now I am truly a very serious student. This is serious work and I am determined to do the very best I can to aid the health care team in our mission to care for patients.

## Heartfelt

Gary Markrack, SRJC Rad Tech 2<sup>nd</sup> Semester

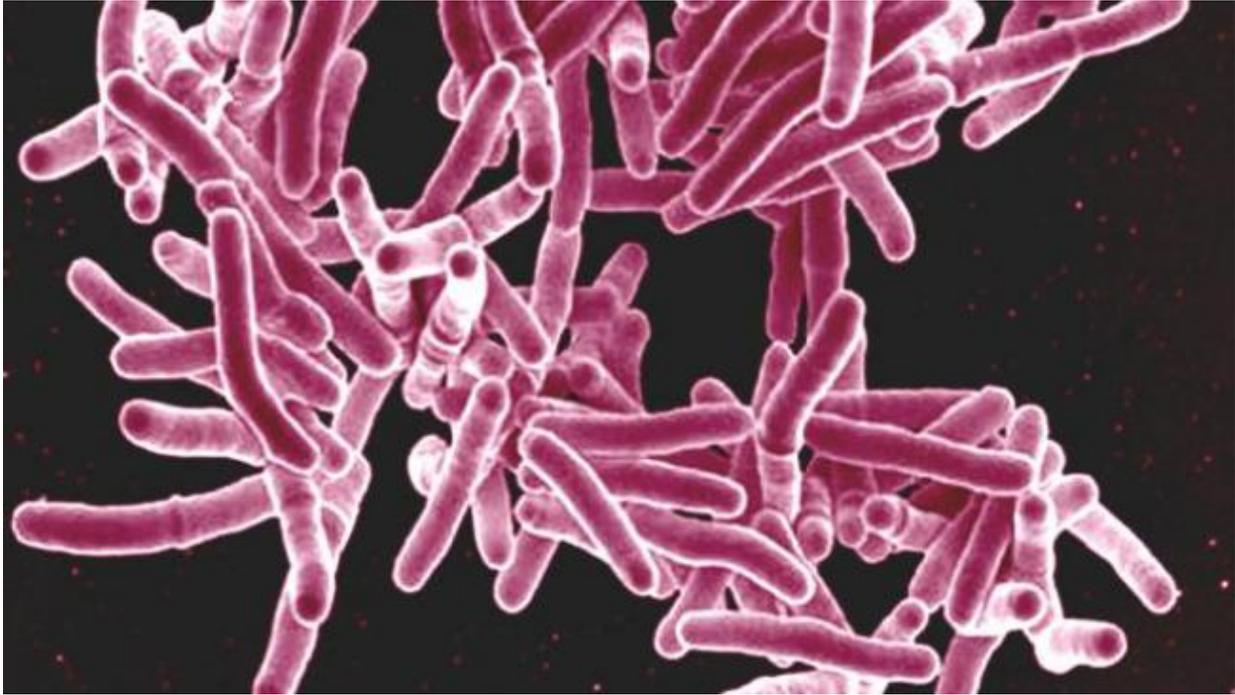
In early February, I was assisting with an emergency room call for a hip x-ray. The technologist and I went to the emergency room and brought the patient to the imaging department. The technologist remembered the patient because ours is a small hospital and the patient had been seen in the imaging department frequently over the years. As we brought the patient into our imaging room, I perceived a subtle but distinctly different "look" in the technologist movements and expressions while speaking with the patient.

The emergency room order called for a right hip x-ray. It was a trauma situation and it called for thinking differently, outside the box. Knowing the x-ray tube would not be able to get the adequate distance from the image receptor by parking the gurney parallel to the x-ray table, the technologist made the decision to image the patient on the gurney using the upright x-ray Bucky. Since the upright Bucky does not move other than vertically, we moved the tube and angled the gurney to the appropriate SID and angle to obtain the cross-table lateral (Danelius Miller) projection.

We carefully positioned the patient's body and limbs to maximize image quality and minimize movement of the affected area. Nevertheless, when lifting the opposite leg, the patient's pain threshold was reached and she became extremely uncomfortable. The patient knew from prior visits that the images were critical and positioning is important for diagnosis so despite the pain she insisted we continue. We quickly finished positioning and shot the cross-table lateral.

I am a student radiographer and I know full well that I cannot interpret a radiographic image, but it was immediately apparent the patient had several broken bones including the head and neck of the femur and the acetabulum. The technologist with whom I was assisting got emotional and took a moment before returning to the patient from the tech area. We gathered ourselves and quickly returned the patient back to the emergency room. But most touching of all was when we turned to leave the ER, in parting the patient caught my eye and said "thank you". The technologist and I then returned to the imaging department and reviewed the radiologist's notes about the images we completed. The report noted several fractures and possible further medical challenges in light of the patient's history of metastatic disease. Shortly thereafter, the patient transferred to a higher level of care for further evaluation.

It had been an emotional situation and difficult for me to witness, but the experience was priceless. While it was very difficult to watch the technologist go through the challenges of positioning the patient when there was an obvious emotional investment, I was so impressed that the technologist was able to distance herself and remain focused, but not to the extent of cold and unfeeling. This experience has resonated within my heart and soul. I witnessed a technologist who I respect and try to emulate go through an emotional experience, and yet perform her job professionally and with compassion. This sets a tremendous example for me, and one that I will long remember. I wish there were more hours in the day to allow me to learn more at the hospital. Thank you for allowing me to participate and learn a skill that will last a lifetime.



Mycobacterium Tuberculosis (Flickr/NIAID)

## **TUBERCULOSIS: A NEWBIE'S GUIDE ON HOW TO PROTECT YOURSELF AND OTHERS**

BY CHELSEA CHRISTOPHER  
Diagnostic Medical Imaging  
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Class of Dec 2014

Tuberculosis.... I remember before I lived in San Francisco, I had learned about tuberculosis in school. I vividly remember the image of the Iron Lung shown in class and I remember mentally categorized tuberculosis with other diseases, such as polio, as a condition of 1950s America; a thing of the past. I knew that tuberculosis was rampant in other areas of the world, but I never thought I would have to worry about this "old" disease in my lifetime. That all changed when I started my clinical rotation at a major San Francisco hospital as a student technologist. The first time I encountered a patient's requisition that read "TB+," I panicked. I had no idea what to do or how to protect myself. I realized I knew very little about the disease and what to do when performing an examination on a patient with suspected or confirmed tuberculosis. After talking with some seasoned technologists and doing a little research on my own, I now feel confident as to what to do when encountering this type of patient demographic. In this article, I hope to provide a background and a simple how-to guide as to what to do to protect yourself and others against the spread of tuberculosis.

Chances are, if you work in the health profession you have encountered a patient with suspected or confirmed tuberculosis. This is especially true in the city of San Francisco, CA. According to San Francisco Health Partnership (SFHIP), 13.1 cases of tuberculosis per 100,000

population was recorded in 2011. This makes San Francisco County the highest of all tuberculosis rates in California, with 118 new recorded cases in 2011 alone.

San Francisco is also home to a number of tuberculosis care facilities, making the possibility of exposure that much more probable to health care workers in this area. Since radiologic exams are often used to diagnose or rule out tuberculosis, technologists are often subjected to the potential tuberculosis infection. Since the likelihood of coming into contact with tuberculosis is high, it is important to recognize when a potential exposure is likely to occur in order to reduce the possibility of infectious transmission.

So how can you recognize a situation where you might be exposed to tuberculosis? Unfortunately, these situations are not always obvious. A person with tuberculosis may or may not be showing any signs of infection and might not be wearing a mask to avoid infectious transmission. Luckily, in the world of radiology, a patient's requisition can tell us a lot about the patient before we come within contact. This gives us an opportunity to prepare for potential exposure to tuberculosis and other infectious diseases requiring special protective measures. A patient's requisitions may state that the patient has a history of positive (+) PPD or QFT. These two abbreviations stand for purified protein derivative, also known as the tuberculin skin test, and the QuantiFERON tuberculosis blood test respectively. Although a positive test finding does not always mean the patient actually has the disease, the same precautions should be exercised as if the patient had tuberculosis to minimize potential infection. Other indications of potential tuberculosis exposure include a requisition that reads "R/O TB," or "positive (+) TB." As a health care employee, knowing what tuberculosis is and how it spreads will help you to take the appropriate precautions in protecting yourself and others from potential infection.

So, what is tuberculosis and how does it spread? Mycobacterium tuberculosis is the bacteria responsible for tuberculosis. Once a person is infected with mycobacterium tuberculosis, they will always possess the disease in either an active form or a dormant form. This bacterial disease predominantly affects the lungs, but can spread to affect other areas of the body. When this bacteria enters the lungs it reeks havoc on the delicate lung tissues. The body attempts to protect itself by walling off the infiltrative organism, limiting its spread to adjacent tissues in a process that results in necrosis of lung epithelial, and eventually, scarring. Scarring can lead to further respiratory complications in an infected person. Although primary tuberculosis occurs in the apices of the lungs, secondary infections and other types of tuberculosis can occur in any part of the lungs. When a person is infected with mycobacterium tuberculosis, they can spread the disease to others by transmission through air. This disease is considered airborne and a person can catch the disease by being in close proximity to an infected individual when they either cough, sneeze, or even talk. According to San Francisco Health Partnership (SFHIP), a person with tuberculosis is contagious until he/she has been on the appropriate treatment and have completed its intended course of medications. One thing that makes tuberculosis especially dangerous is that research on its transmission is incomplete. The CDC states on their website ([www.CDC.org](http://www.CDC.org)) that, "... the smallest infectious dose of M. tuberculosis nor the highest level of exposure to M. tuberculosis at which transmission will not occur has been defined conclusively.... Furthermore, the size distribution of droplet nuclei and the number of particles containing viable M. tuberculosis that are expelled by infectious TB patients have not been defined adequately, and accurate methods of measuring the

concentration of infectious droplet nuclei in a room have not been developed.” This statement should raise significant concern. What is to be done to limit the spread of tuberculosis if the means of infectious transmission are not well defined?

It is crucial to use standard precautions when working with any and all patients. Standard precautions assume every patient is infectious and requires that health care providers exercise minimum infection prevention measures with all patients, regardless of suspected or confirmed infection ([www.CDC.org](http://www.CDC.org)). Hand washing is of particular importance. Although standard precautions minimize the risk of infection for most communicable diseases, tuberculosis requires efforts beyond the use of gloves and frequent hand washing due to its aerosol, or airborne nature. In the case of tuberculosis, transmission-based precautions should be used. Under the larger umbrella of transmission-based precautions, tuberculosis is considered an airborne communicable disease, and requires the use of airborne precautions. This means that when coming within contact with an infected patient, we follow the following guidelines according to the CDC:

- Try to isolate the patient as much as possible. This means not placing the patient within close contact with yourself, health care workers, or other patients.
- Provide a procedure or surgical face mask to the patient. Obtain an exam room as soon as possible and instruct the patient to keep their mask on for the entire exam, or while visiting the hospital, and to avoid close contact with other individuals. Ideally, an airborne infection isolation room (AIIR) should be used to perform the exam in, if available at your care facility.
- If at any time you need to leave the room, make sure the exam room door is closed, and personnel are notified of the patient’s condition if they attempt to enter the exam room.
- Make sure to wear personal protective equipment appropriate for airborne precautions **before** coming within contact with a suspected or confirmed tuberculosis patient. This included the use of an N-95 respirator or higher (i.e. N-99 or N-100 respirator) to be worn by the health care worker. According to the FDA and CDC, N-95 respirators are approved for use, and measure over 95% effective against the spread of tuberculosis, when properly used. The effectiveness is a measurement of filter efficiency of the respirator’s ability to filter particles of a size of 1  $\mu\text{m}$  at a rate of 50 L/min. Fit testing is necessary for the N-95 respirator to be considered effective. Proper fitting requirements will be explained later in this article. The N-95 respirator should be removed promptly whenever exiting an exam room. Proper disposal of the N-95 respirator is crucial to contain any potentially infectious particles that might be present on the respirator. All FDA-cleared N-95 respirators are designed for single-use only, and are considered disposable devices. If your N-95 respirator becomes damaged, wet, soiled, or if breathing becomes difficult, the N-95 respirator should be replaced immediately.
- Make sure to wash your hands before and after coming into contact with an infected patient or contaminated objects. Properly dispose of contaminated objects such as gloves, masks, respirators, and other materials.

- Finally, proper cleaning of the exam room should be done once the patient has left. This includes any surfaces the patient may have touched or been near (i.e. chest stand for chest x-ray, etc). The room should be well ventilated and left vacant for as long as possible to reduce the risk of inhaling residual mycobacterium tuberculosis particles.

As stated above, proper N-95 respirator fitting is required to ensure protection against tuberculosis. Without proper fit testing, an N-95 respirator is considered ineffective. So, how do you go about getting fit tested? Check with your facility to see where to get fit tested. They must provide the means to do so as part of their infection control program. The goal of fit testing is to provide an adequate seal and this is achieved when there is a N-95 respirator leakage under 10% (NIOSH guidelines). In general, a proper fitting N-95 respirator should fit tight to the face without feeling uncomfortable. It should provide a seal to the wearer's face to improve protection from mycobacterium tuberculosis particles. It is important to note that fit testing is model specific and whenever switching from model to model, you must be fit tested again to ensure protection. An improperly fitted N-95 respirator poses the risk of infectious particles being inhaled and this is particularly of concern around the periphery of the respirator where there is poor contact or lack of a seal to the wear's face. N-95 respirators are not designed for children and are not appropriate for people who have facial hair or wear excess makeup, because a proper seal cannot be achieved. Once you have been fit tested and the make/model and size has been determined appropriate for you, you can now follow the guidelines detailed above when coming into contact with patients that have suspected or confirmed tuberculosis to reduce the spread of infection.

Reducing the spread of mycobacterium tuberculosis through the use of airborne precautions allows a technologist to provide a safe environment for all patients. Knowing what to do in the case of potential tuberculosis infection will enable a technologist to perform the necessary diagnostic images while maintaining professional. A professional technologist should concentrate on providing exceptional patient care without showing signs of anxiety or fear that might otherwise alarm a patient. It is our responsibility as technologists to support to our patients in times of uncertainty. Personal confidence in caring for patients with suspected or confirmed tuberculosis and other communicable disease not only allows patient care to become a priority, but enables a technologist to protect themselves and others from the spread of tuberculosis.

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Image from [www.weather.com](http://www.weather.com)