

## RADIOLOGY

### DESCRIPTION OF SESSION

This session provides participants with an understanding of radiology and how it fits into the overall health care profession.

### CATEGORY

- Health
- Radiology

### OBJECTIVES

By the end of this session, participants will be able to:

- Describe the roles of a radiologist and radiology technician.
- Discuss the educational requirements of each role.
- Identify a few of the technologies used in radiology such as X-ray, ultrasound, CT, and MRI.
- Gain in-person experience with one or more imaging modalities, if possible.
- Tour a radiology department.

### SUPPLIES

- Laptop computer or equipment to view videos
- X-ray of the chest and two views of a forearm or other fracture
- CT images of head and chest/abdomen/pelvis
- Portable ultrasound machine [optional]

**ADVISOR NOTE:** Remove any patient personal identifiable information from radiologic films prior to meeting.

### PREPARATION

- Arrange for a speaker in the radiology profession, such as a radiologist, radiology resident, or radiology technician. Have them bring a portable ultrasound machine (optional).
- Obtain permission from a parent or guardian if a participant will be used as a volunteer for the ultrasound activity.
- Arrange for a tour of a radiology department.

### VIDEOS

**Reminder:** Any time you use an outside source, be sure you follow the content owner's or website's permission requirements and guidelines.

Advisors should preview videos before showing them to make sure they are appropriate for the post.

- ["X-Rays"](#) from The KidsKnowIt Network
- ["General Ultrasound #1 Abdominal"](#) from www.medpromovil.com
- ["How CT Scan Machine Works"](#) from BiomedEngg
- ["CT Scan—Imaging in Medicine"](#) from The Open University

## RESOURCES

*Reminder: Any time you use an outside source, be sure you follow the content owner's or website's permission requirements and guidelines.*

The following are suggested resources that Advisors may find helpful in planning this session:

- [“What Is a Radiologist?”](#) from the American College of Radiology
- [“Explore Careers in Radiologic Technology”](#) from the American Society of Radiologic Technologists
- [“How to Become a Radiologist”](#) from HowToMedia
- [“The Future of Radiology Jobs”](#) from [www.radiologytechnicianreviews.org](#)
- [“Nuclear Medicine”](#) from the National Institute of Biomedical Imaging and Bioengineering
- [“Common Interventional Radiology Procedures”](#) from the Society of Interventional Radiology
- [“The Future of Radiology”](#) from the National Center for Biotechnology Information, U.S. National Library of Medicine

**ADVISOR NOTE:** Text in italics should be read aloud to participants. As you engage your post in activities each week, please include comments, discussions, and feedback to the group relating to **Character**, **Leadership**, and **Ethics**. These are important attributes that make a difference in the success of youth in the workplace and in life.

## ACTIVITIES

### Introduction

Tell participants: *Radiology is a medical specialty that uses imaging to diagnose and treat diseases within the body. Radiologists use a variety of imaging techniques such as X-ray radiography; ultrasound; computerized tomography or CT scan; nuclear medicine including positron-emission tomography or PET; and magnetic resonance imaging or MRI to diagnose and/or treat diseases. Interventional radiology is the performance of usually minimally invasive medical procedures with the guidance of imaging technologies.*

### ACTIVITY 1

#### X-Ray

- Watch the video [“X-Rays”](#) from The KidsKnowIt Network and answer any related questions from participants.
- Show an example of a chest X-ray and read the results.
- Have participants identify a forearm or other fracture via X-ray.

### ACTIVITY 2

#### CT Scan

- Watch the videos [“How CT Scan Machine Works”](#) from BiomedEngg and [“CT Scan—Imaging in Medicine”](#) from The Open University and answer any related questions from participants.
- Review the films of a CT scan of the head.
- On a sample CT scan of the chest/abdomen/pelvis, have each participant identify an organ or other structure.

### ACTIVITY 3

#### Ultrasound

- Watch the video ["General Ultrasound #1 Abdominal"](http://www.medpromovil.com) from [www.medpromovil.com](http://www.medpromovil.com) and answer any related questions from participants.
- Perform an ultrasound on a volunteer patient (optional—Note that permission must be obtained prior to the meeting from a parent or guardian if a participant is used as a volunteer.) You may also choose to view existing ultrasound film with the patient's information removed.
- Have each student hold the ultrasound probe.

### ACTIVITY 4

#### Speaker

Have the speaker address these topics:

- An overview of radiology
- The role of the radiologist in the healthcare system
- A typical day for a general radiologist or radiology technician
- Specialized areas such as interventional radiology or nuclear medicine
- Educational requirements involved in becoming a radiologist and/or radiology technician including courses to focus on in high school and college
- The future of radiology
- An overview of a few radiologic modalities with example images

### ACTIVITY 5

#### Tour

- Tour a radiology department.

#### ADVISOR NOTE

Some sample questions are below. They are designed to help the participants apply what they have learned to their own interests. You are welcome to use these questions or develop your own questions that relate to your post or specific focus area.

### REFLECTION

#### Focusing Questions

- *What did you observe in the radiology department?*
- *Which imaging modality do you find most interesting?*
- *What did you learn during today's discussion?*

#### Analysis Questions

- *What differences did you notice in the daily work of the radiologist and the radiology technician?*
- *How is radiology different from other medical specialties?*
- *What types of ethical issues do you think could arise related to performing radiology?*

#### Generalization Questions

- *What can you do now, during your time as a student, to prepare*

- yourself for this or a similar career in the medical field?*
- *Why is this topic important?*

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