

## Supplementary Appendix S1

Q1. Which of the following best describes your current primary employer?

- Academic Institution
- Private Practice
- Other, please specify: \_\_\_\_\_

*Skip To: End of Block If Q1 = Other, please specify:*

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Q2. Please select your primary area of practice.

- Radiology
  - Internal Medicine
  - Emergency/Critical Care
- 

Q3. How many years have you been practicing in your specialty (post-residency)?

- Less than 1 year
  - 1-5 years
  - 6-10 years
  - 11-15 years
  - 16-20 years
  - Greater than 20 years
-

Q4. Was your residency performed at a/an...

- Private practice
  - Academic institution
  - Other, please specify: \_\_\_\_\_
- 

Q5. What imaging modalities are available at your practice? Please check all that apply.

- Radiography
  - Fluoroscopy
  - Ultrasound
  - Computed tomography
  - Magnetic resonance imaging
  - Nuclear medicine / PET
- 

Q6. How many radiologists are employed by your practice?

- 1
  - 2
  - 3
  - 4 or greater
  - There is no radiologist on staff, but we utilize a traveling or an online radiology service
  - There is no radiologist on staff and we do not use a traveling or online radiology service
-

Q7. Is mandatory radiation safety training for ALL medical personnel (doctors and technicians regardless of ionizing radiation use, e.g. taking radiographs) performed at your institution?

- Yes
  - No
  - Don't know
- 

*Display This Question:*

*If Is mandatory radiation safety training for ALL medical personnel (doctors and technicians regardl... = No*

*Or Is mandatory radiation safety training for ALL medical personnel (doctors and technicians regardl... = Don't know*

Q8. Is mandatory radiation safety training for all medical personnel who USE ionizing radiation performed at your institution (e.g. technicians performing radiographs)?

- Yes
  - No
  - Don't know
- 

Q9. Are radiation safety practices discussed in your employee/practice manual?

- Yes
  - No
  - Don't know
  - My practice does not have an employee/practice manual
-

*Display This Question:*

*If Is mandatory radiation safety training for ALL medical personnel (doctors and technicians regardl...*  
= Yes

*Or Is mandatory radiation safety training for all medical personnel who USE ionizing radiation perfo...*  
= Yes

Q10. Please select the format(s) in which training is offered. Please check all that apply.

- In person/lecture by practice employee
  - In person/lecture by outside entity
  - Online
  - Self-taught through reading materials/employee manual
  - Other, please specify: \_\_\_\_\_
  - Don't know
- 

*Display This Question:*

*If Is mandatory radiation safety training for ALL medical personnel (doctors and technicians regardl...*  
= Yes

*Or Is mandatory radiation safety training for all medical personnel who USE ionizing radiation perfo...*  
= Yes

Q11. What is the frequency of radiology safety training?

- One time only
  - Once yearly
  - More frequent than yearly
  - Less frequent than yearly
  - Don't know
-

*Display This Question:*

*If Is mandatory radiation safety training for ALL medical personnel (doctors and technicians regardl...  
= Yes*

*Or Is mandatory radiation safety training for all medical personnel who USE ionizing radiation perfo...  
= Yes*

Q12. Have you received radiation safety training at your current institution?

Yes

No

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*Display This Question:*

*If Is mandatory radiation safety training for ALL medical personnel (doctors and technicians regardl...  
= Yes*

*Or Is mandatory radiation safety training for all medical personnel who USE ionizing radiation perfo...  
= Yes*

Q13. During radiation safety training, is there any discussion on minimizing dose of ionizing radiation to hospital personnel?

Yes

No

Don't know

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*Display This Question:*

*If Is mandatory radiation safety training for ALL medical personnel (doctors and technicians regardl...  
= Yes*

*Or Is mandatory radiation safety training for all medical personnel who USE ionizing radiation perfo...  
= Yes*

Q14. During radiation safety training, is there discussion about minimizing exposure to personnel through time, distance, and shielding?

Time is defined as reducing time spent working with radiation sources.

Distance is defined as increasing the distance from radiation sources.

Shielding is defined as the use of lead or other material to protect personnel.

Yes

No

Don't know

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*Display This Question:*

*If Is mandatory radiation safety training for ALL medical personnel (doctors and technicians regardl...  
= Yes*

*Or Is mandatory radiation safety training for all medical personnel who USE ionizing radiation perfo...  
= Yes*

Q15. During radiation safety training, is there any discussion on limiting dose of ionizing radiation to patients?

Yes

No

I don't know

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Display This Question:

If Is mandatory radiation safety training for ALL medical personnel (doctors and technicians regardl...  
= Yes

Or Is mandatory radiation safety training for all medical personnel who USE ionizing radiation perfo...  
= Yes

Q16. Do you know what the acronym A.L.A.R.A. stands for in regards to radiation safety?

Yes (Please write the answer in the text box provided)

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No

Q17. Does your hospital have an assigned radiation safety officer?

Yes

No

Don't know

Q18. Are personnel at your hospital who work with radiation assigned individual dosimetry badges?

Yes

No

Don't know

*Display This Question:*

*If Please select your primary area of practice. = Radiology*

Q19. Technicians and/or students at our institution are taught to take radiographs *primarily*...

- With the students in the x-ray examination room providing manual restraint of the patient
  - By remote with the students outside of the x-ray examination room with the assistance of sedation (when possible) and physical restraints (e.g. sand bags)
  - Students are taught both techniques equally
- 

Q20. Human studies have found that roughly 1 out of 1000 patients will develop a potentially fatal cancer as a result of computed tomography.

Do you believe that ionizing radiation doses from veterinary CT have the potential for a similar increase in the lifetime risk of fatal cancer in veterinary patients?

- Yes
  - No
- 

*Display This Question:*

*If Please select your primary area of practice. = Internal Medicine*

*Or Please select your primary area of practice. = Emergency/Critical Care*

Q21. Has a client ever asked about the risks associated with the use ionizing radiation in imaging procedures?

- Yes
  - No
-



*Display This Question:*

*If Please select your primary area of practice. = Internal Medicine*

*Or Please select your primary area of practice. = Emergency/Critical Care*

Q22. Do you routinely warn clients that some medical imaging procedures use ionizing radiation and that they may carry a cancer risk?

Yes

No

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*Display This Question:*

*If Please select your primary area of practice. = Radiology*

Q23. Do you routinely warn clinicians that medical imaging procedures using ionizing radiation may carry a cancer risk?

Yes

No

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Q24. If a study showed that CT scans in young patients (e.g. a poly-trauma hit by car dog or puppy evaluated for a portosystemic shunt) resulted in a 0.1% increased lifetime risk of fatal cancer, would this affect your use of this procedure?

Yes, I would choose an alternative modality

Yes, but only if an alternative modality would provide similar diagnostic value

No, I already consider this when choosing a modality

No, this would not be a factor in the procedure I choose.

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Q25. Within your institution what would a typical response be toward a staff member who was found to have violated radiation safety practices for a first offense (e.g., taking patient radiographs with an ungloved hand in the primary x-ray beam or taking a radiograph without wearing a protective lead apron and thyroid shield)? Please select all that apply.

- No action would be taken
  - The individual would be educated in radiation safety practices
  - The finding and potential hazard would be documented in the radiographic report
  - The individual would be verbally warned by a radiologist or administrator regarding a breach in safety protocols
  - More severe disciplinary action would be taken. Please explain.  
\_\_\_\_\_
  - Don't know
- 

Q26. Within your institution what would a typical response be toward a staff member who was found to have violated radiation safety practices on multiple occasions (e.g., multiple radiographs taken with an ungloved hand in the primary x-ray beam or multiple occasions of taking radiographs without a protective lead apron and thyroid shield)? Please select all that apply.

- No action would be taken
  - The individual would be educated in radiation safety practices
  - The finding and potential hazard would be documented in the radiographic report
  - The individual would be verbally warned by a radiologist or administrator regarding a breach in safety protocols
  - More severe disciplinary action would be taken (e.g. termination of employment)
  - Don't know
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Q27. Please estimate the effective dose for the following medical imaging studies. For reference, the estimated yearly dose due to natural background radiation is 3.1mSv

	0.1-.0.5 mSv	0.5-1.0 mSv	1-5 mSv	5-10 mSv	10-50 mSv	50-100 mSv	>100 mSv	This modality does not utilize ionizing radiation
Thoracic Radiographs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Three-Phase Esophagogram	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Three Phase (pre-contrast, arterial, and delayed phases) CT of the abdomen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MRI of the brain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Abdominal ultrasound	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>