APPENDIX

Demographics and Exposure

1. Your gender:
   - Male
   - Female
   - Other: (open field)

2. What is your field of training?
   - Medical School
   - Vascular Surgery
   - Gastroenterology
   - General Surgery
   - Orthopedic Surgery
   - Urology
   - Radiology
   - Interventional Cardiology

3. Which year of training are you in?
   - Medical student, year 1
   - Medical student, year 2
   - Medical student, year 3
   - Medical student, year 4 and up
   - Junior Resident (PGY 1-2)
   - Senior Resident (PGY 3 and up)
   - Fellow
   - Attending

4. How would you rate your current knowledge of radiation safety?
   - Far above average
   - Above average
   - Average
   - Below average
   - Far below average

5. Have you ever attended training events (lectures, seminars, etc) on radiation protection organized by your training program, workplace, or medical association?
   - Yes
   - No

6. Have you been required to take an exam on radiation safety?
   - Yes
   - No
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7. How much training do you estimate you’ve received on radiation safety in your CURRENT training program?
   - >5 hours
   - 1 hour – 5 hours
   - 30 minutes – 1 hour
   - ≤30 minutes
   - None

8. Is annual radiation safety training/education required at your institution?
   - Yes
   - No

9. How often are you involved in patient care requiring exposure to radiation/fluoroscopy?
   - Daily
   - At least several times a week
   - Sometimes or several times a month
   - Rarely or less than once a month
   - Never

10. Where do you perform most of your fluoroscopically guided procedures?
    - Office
    - Ambulatory surgery center
    - Hospital
    - I do not perform fluoroscopically guided procedures, or I have not been involved in fluoroscopically guided procedures

11. Are you concerned about the effects of radiation?
    - Yes
    - No

12. How often do you wear radiation protection equipment (e.g., apron, vest, gloves, lead glasses, thyroid protector, leaded cap, etc) when performing fluoroscopically guided procedures?
    - Always
    - Usually
    - Sometimes
    - Rarely
    - Never
    - Not applicable

13. How often do you wear a radiation badge/dosimeter (device that measures radiation)?
    - Always
    - Usually
    - Sometimes
    - Rarely
    - Never
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14. Where do you wear your radiation badge/dosimeter (device that measures radiation)?
   ○ Head level
   ○ In front of radiation garment, collar level
   ○ In front of radiation garment, waist level
   ○ Behind radiation garment, collar level
   ○ Behind radiation garment, waist level
   ○ I do not wear a radiation badge/dosimeter

15. Who monitors your radiation badge/dosimeter?
   ○ Your institution
   ○ You
   ○ No one
   ○ Do not know
   ○ Not applicable

16. How often do you check your radiation badge/dosimeter readings?
   ○ Monthly
   ○ Quarterly
   ○ Semi-annually
   ○ Yearly
   ○ Never
   ○ Not applicable

17. How often are your radiation protection garments checked for cracks or damage?
   ○ Monthly
   ○ Quarterly
   ○ Semi-annually
   ○ Yearly
   ○ Never
   ○ Unsure
   ○ Not applicable

18. Do you record fluoroscopy cumulative dose for each procedure as part of your procedure/operative report?
   ○ Always
   ○ Usually
   ○ Sometimes
   ○ Rarely
   ○ Never
   ○ Not applicable

19. Which of these features do you or your department use regularly to reduce radiation exposure (select all that apply):
   ● Last image hold
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- Auto-swap image functionality
- User/physician operated fluoroscopy
- Pulse images over continuous exposure
- Routinely positioning the image intensifier as close as possible to area of interest
- Routine collimation to the area of interest
- None of the above

Radiation Safety Knowledge

1. Which of the following is LEAST consistent with an As Low as Reasonably Achievable (ALARA) principle?
   - Reducing exposure time
   - Increasing distance from the source of radiation
   - Increasing the field of view
   - Shielding
   - Do not know

2. Which of the following is a stochastic effect of radiation?
   - Cancer
   - Cataract formation
   - Hair loss
   - Skin erythema
   - Do not know

3. If you double your distance from the source of radiation, the intensity of radiation is reduced by a factor of:
   - 1
   - 2
   - 4
   - 10
   - Do not know

4. Which of the following diseases may be a result of medical radiation damage?
   - Cataracts
   - Cancer
   - Hereditary diseases
   - All of the above

5. Which of the following MOST LIKELY provides the GREATEST source of radiation to occupational staff during fluoroscopy?
   - Patient
   - X-ray tube
   - Collimator
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- Image receptor
- Do not know

6. Which of the following imaging modalities is responsible for the greatest radiation dose for medical staff?
   - MRI
   - Ultrasound
   - **Fluoroscopy**
   - CT

7. How can medical imaging using ionizing radiation cause harm?
   - **Creates high-energy photons that ionize atoms and produce free radicals**
   - All types of medical imaging do not cause harm
   - Creates alpha particles that penetrate deep into tissues and produce free radicals
   - Creates beta particles that penetrate deep into tissues and produce free radicals

8. In general, what does the International Commission on Radiological Protection (ICRP) suggest as a limit for occupational exposure to radiation?
   - **20mSv/year**
   - 20mSv/day
   - 60mSv/year
   - 60mSv/day

**Preferred Training Method**

1. What type of learning method do you believe is best for delivering radiation safety training?
   - Didactic lectures
   - Seminars
   - Online courses
   - Workshops
   - Other: (open field)

2. At what level of training do you believe radiation safety training should be implemented?
   - Medical school
   - Residency
   - Attending physician