Supplementary Online Content


**eAppendix. Provider Understanding of the Risks of Ionizing Radiation**

This supplementary material has been provided by the authors to give readers additional information about their work.
Provider Understanding of the Risks of Ionizing Radiation

1. Instructions for Survey Completion

Dear Provider,

This study is designed to learn more about provider awareness of radiation exposure and associated risks from commonly ordered medical imaging studies. This study is not designed to treat any illness or to improve your health.

This research is currently not funded, or paid for by any individual, or institution.

You have a choice about being in this study. You do not have to be in this study if you do not want to be.

If you have questions, you can call Chad Stickrath at 303-399-8020, ext. 3140. You can call and ask questions at any time. If you have questions regarding your rights as a research subject, concerns or complaints about this research study, please call the Colorado Multiple Institutional Review Board (COMIRB) office at (303) 724-1055.

There are 13 questions in the survey and it will take 8 - 14 minutes to complete. After completing question 13, please click next to go to the survey completion page, then click done to submit the survey and exit. The survey is anonymous. You have two weeks time to finish the survey. Please do not perform research or discuss with others before answering.

1. Do you give your consent to participate in this survey?

☐ Yes - I consent to participate in the survey.

☐ No - I do not consent to participate in the survey.
1. You are ordering a Chest X-ray (PA view) for an adult patient. Estimate the amount of ionizing radiation (in milliSieverts/REMS) associated with a standard PA view Chest X-ray: Please select one.

- None
- Minimal: < 0.1 mSv (0.01 REMs)
- Low: 0.1 - 1.0 mSv (0.01-0.10 REMs)
- Medium: 1.1 - 10 mSv (0.11 - 1.00 REMs)
- High: 11 - 100 mSv (1.10 - 10.00 REMs)
- Do not Know

2. For the following three radiological studies, how many Chest X-rays give the equivalent radiation dose as the respective study? (if a CXR is 1 unit of radiation)

<table>
<thead>
<tr>
<th>Study</th>
<th>1 - 100</th>
<th>101 - 200</th>
<th>201 - 400</th>
<th>&gt; 400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest CT pulmonary embolus protocol</td>
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<tr>
<td>Thallium treadmill test</td>
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<td>Diagnostic left heart catheterization</td>
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</tbody>
</table>

3. Based on World War II atomic bomb data, at what amount of radiation exposure does the risk for subsequent cancers increase? (mSv/REMs) Please select one.

- < 1 mSv (< 0.1 REMs)
- 1 - 10 mSv (0.1 - 1.0 REMs)
- 11 - 20 mSv (1.1 - 2.0 REMs)
- 21 - 50 mSv (2.1 - 5.0 REMs)
- > 50 mSv (> 5.0 REMs)
- Do not know

4. For every 10,000 chest CT scans performed on 30 year old men, how many radiation-induced cancers will develop over the lifetimes of those patients?

- None
- 1 - 4
- 5 - 10
- > 10
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5. In your experience, what percentage of chest CT scans ordered with contrast are noted to have "incidentalomas"- important incidental findings that require further evaluation? Please select one.

- < 1%
- 1 - 10%
- 11 - 20%
- 21 - 50%
- > 50%
- Do not know

6. To what percentage (%) of patients do you mention possible incidental findings and the risks of subsequent workup to a patient prior to ordering a chest CT scan? Please select one.

- 0%
- 25%
- 50%
- 75%
- 100%

7. I feel comfortable educating patients about the risks of ionizing radiation from medical diagnostics. Please select one.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

8. On average, what percentage (%) of patients do you educate about possible radiation risks when ordering the following imaging studies? Please select one for each imaging study.

<table>
<thead>
<tr>
<th>Imaging Study</th>
<th>0%</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
<th>100%</th>
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</thead>
<tbody>
<tr>
<td>Plain films/radiographs</td>
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<tr>
<td>Computed tomography (CT scans)</td>
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<td>Magnetic resonance imaging (MRI)</td>
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<tr>
<td>Ultrasound studies</td>
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</table>
### Provider Understanding of the Risks of Ionizing Radiation

9. **Time limitations frequently prevent me from adequately educating patients about the risks of ionizing radiation from medical diagnostics. Please select one.**

- [ ] Strongly agree
- [ ] Agree
- [ ] Neutral
- [ ] Disagree
- [ ] Strongly disagree
- [ ] I do not typically educate patients
- [ ] I only educate patients if they ask

10. **I feel informed consent should be obtained when ordering all CT scans. Please select one.**

- [ ] Strongly agree
- [ ] Agree
- [ ] Neutral
- [ ] Disagree
- [ ] Strongly disagree

11. **How many years of training and practice have you completed beyond medical school? Please select one.**

- [ ] < 1 year
- [ ] 1 - 3 years
- [ ] 4 - 6 years
- [ ] 7 - 10 years
- [ ] > 10 years

12. **How many hours of formal instruction have you had about the radiation exposure risks from medical imaging? Please select one.**

- [ ] None
- [ ] 1/2 hour - 1 hour
- [ ] 1 - 2 hours
- [ ] 2 - 3 hours
- [ ] 3 - 4 hours
- [ ] > 4 hours
13. What type of healthcare provider are you?  


3. Survey Completion

Click on "Done" to close this page.