Q1. Feelings of helplessness and concern parents have for their child may come across as agitation or aggression. What is a common technique to help diffuse the parent’s agitation?

32 / 34 correct responses

- a. Help the parent understand the need for the examination: 2 (5.9%)
- b. Tell them we cannot proceed until they calm down: 0 (0%)
- ✓ c. Help the parent to feel in control of the situation: 32 (94.1%)
- d. Tell them you are the expert and they should trust you: 0 (0%)

Q2. When surveyed, why are parents of chronically ill patients found to be most frustrated when visiting large multi-location radiology clinics?

23 / 34 correct responses

- a) They feel marginalized when sent to outpatient centers instead of the main hospital care: 3 (8.8%)
- b) They are required to travel to different sites to receive patient care: 7 (20.6%)
- c) They feel their standard of care is lower at outpatient centers: 1 (2.9%)
- ✓ d) They are confused by inconsistent practices/policies between the main hospital care and satellite facilities: 23 (67.6%)
Fall 2019 Symposium ABR SAMs Question Results

Q3. One of the best ways to answer a concerned parent’s question(s) is to:

- a. Provide an answer involving scientific facts to help them see you are truly knowledgeable…
- b. Respond by echoing their concern as a question: why do you think your son/daughter…
- c. Tell them whatever they want to hear to calm them down, and then get the examination over…
- d. Respond by telling them all will be well and they shouldn’t worry about anything; they ar…

34 / 34 correct responses

Q4. Risk models (i.e., $Risk\ model = x \cdot ERR + (1-x) \cdot EAR$) in BEIR VII report are:

- a. Based on committee assignment
- b. Constant for every cancer type
- c. Constant with time
- d. Based on medical and occupational studies

23 / 34 correct responses
Fall 2019 Symposium ABR SAMs Question Results

Q5. The BEIR VII report derives its risk estimates from

12 / 34 correct responses

- a. Environmental and occupational radiation studies
  - 2 (5.9%)
- b. Medical radiation and atomic bomb survivor studies
  - 12 (35.3%)
- c. Medical and occupational radiation studies
  - 4 (11.8%)
- d. Only atomic bomb survivor studies
  - 16 (47.1%)
1. Hepatobiliary iminodiacetic acid (HIDA) scan is a type of:

- a. Magnetic resonance imaging (MRI) - 0 (0%)
- b. Nuclear Medicine imaging - 32 (97%)
- c. Ultrasound imaging - 0 (0%)
- d. Computed tomography (CT) imaging - 0 (0%)
- e. None of the above - 1 (3%)

2. In this presentation, FLIGHT is:

- a. A new website for airline ticket booking - 1 (3%)
- b. Conventional 3D conformal treatment - 0 (0%)
- c. Functional image guided therapy for different treatment sites - 3 (9.1%)
- e. None of the above - 0 (0%)
1. When did the first report of ultra-high dose rates of electron radiotherapy causing hypoxia in normal tissue get published?

- A) 1970: 24 (64.0%)
- B) 1980: 3 (8.1%)
- C) 1990: 3 (8.1%)
- D) 2010: 7 (18.9%)

2. Which one is the fundamental reason for normal tissue sparing when using FLASH proton therapy?

- A) 5Rs (Repair, Deoxygenation, Redistribution, Repopulation, Radiosensitivity): 3 (8.1%)
- B) Immune response: 7 (18.9%)
- C) Patient motion: 2 (5.4%)
- D) Bragg peak: 0 (0%)
- E) It is still unknown: 25 (67.6%)
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3. The key challenge in using FLASH proton therapy is ______.

22 / 37 correct responses

A) Normal tissues in the beam path - 1 (2.7%)
B) Size of the target volume - 13 (35.1%)
C) Bragg Peak uncertainties - 1 (2.7%)
D) All of the above - 22 (59.5%)
**Fall 2019 Symposium ABR SAMs Question Results**

An initiative to incorporate diagnostic physics teaching of radiology residents into clinical practice – Jie Zhang

**Q1: When does the ABR Core Examination start?**

- A. 2003: 2 (6.1%)
- B. 2004: 1 (3%)
- C. 2013: 29 (87.9%)
- D. 2014: 1 (3%)

29 / 33 correct responses

**Q2: Appropriately what percentage of the concepts that students receiving traditional didactic lectures can master, on average, assuming they didn't know those concepts at the start of the class?**

- A. 10%: 27 (81.8%)
- B. 30%: 5 (15.2%)
- C. 70%: 1 (3%)
- D. 90%: 0 (0%)

5 / 33 correct responses
Q3: Hands-on physics education can stimulate discussion and facilitates retention of key physics concepts.

0 / 33 correct responses

- A. Not sure: 1 (3%)
- B. Disagree: 0 (0%)
- C. Neutral: 2 (6.1%)
- D. Agree: 30 (90.9%)

Q4: The primary goal of physics education to radiology residents is to

15 / 33 correct responses

- A. Learn imaging physics: 3 (9.1%)
- B. Pass the ABR Core Exam: 15 (45.5%)
- C. Develop expert competence: 15 (45.5%)
- D. Prepare for clinical research: 0 (0%)
Q5: Which of the following is the approach your radiology residents prefer most to learn physics?

- A. Didactic lecture: 1 (3%)
- B. Hands-on teaching: 31 (93.9%)
- C. On-line modules: 0 (0%)
- D. Self-study: 1 (3%)
- E. Other: 0 (0%)
1. Target delineation is a significant source of setup error in radiation therapy and causes what type of uncertainties?

- A. Random errors
- B. Systematic errors
- C. Random and systematic errors
- D. None

0 / 34 correct responses

- A. Random errors: 1 (2.9%)
- B. Systematic errors: 16 (47.1%)
- C. Random and systematic errors: 17 (50%)
- D. None: 0 (0%)

2. The use of IGRT with a 6DOF couch can eliminate all setup uncertainties?

- A. True
- B. False

33 / 34 correct responses

- A. True: 1 (2.9%)
- B. False: 33 (97.1%)
3- 6DOF couch have limitations on how much rotational corrections can be applied. Elekta HEXAPOD is limited to

A +/- 1 degrees - 1 (2.9%)
B +/- 2 degrees - 0 (0%)
√C +/- 3 degrees - 33 (97.1%)
D +/- 4 degrees - 0 (0%)

4- The magnitude of rotational setup errors using 6DOF couch are dependent on the location of the center of mass of the alignment

√A True - 31 (91.2%)
B False - 3 (8.8%)
1. What is the typical 5-year survival rate for medically inoperable stage I non-small-cell lung cancer (NSCLC)?

- a. 20-30% (16, 42.1%)
- b. 30-40% (7, 18.4%)
- c. 40-50% (3, 7.9%)
- d. 50-60% (12, 31.6%)

2. Which of the following characteristics is not a hallmark of SBRT:

- a. Delivery of an ablative dose fractionation to patient with sub-centimeter accuracy (6, 15.8%)
- b. The use of 4DCT for optimized treatment planning (17, 44.7%)
- c. Secure immobilization of patient (1, 2.6%)
- d. Minimized dose to normal critical structures by using multiple, non-opposing fields (9, 23.7%)
- e. ... (5, 13.2%)
3) According to ASTRO’s 2017 “Guideline on Stereotactic Body Radiation Therapy for Early Stage Non-Small Cell Lung Cancer”, are 3-fraction regimens of SBRT contra-indicated for centrally-located lung tumors compared to more peripheral lesions?

30 / 38 correct responses

- a. Yes (30 responses, 78.9%)
- b. No (8 responses, 21.1%)

4) According to some findings by Dr. Chang at MD Anderson, which parameters in SBRT treatment plans should be considered for optimal local control?

24 / 38 correct responses

- a. GTVMinBED10
- b. GTVD05BED10
- c. PTVMeanBED10
- d. PTVD05BED10
- e. A and B
- f. C and D

- d. PTVD05BED10 (7 responses, 18.4%)
- e. A and B (4 responses, 10.5%)
- f. C and D (24 responses, 63.2%)
5) According to a paper by Buuyounouski et al, thoracic tumor motion can reach up to (max):

- a. 0.5 – 1 cm: 0 (0%)
- b. 1 – 1.5 cm: 0 (0%)
- c. 2 – 3 cm: 9 (23.7%)
- **d. 3 – 5 cm**: 29 (76.3%)
If we want to access multiple patients with the same script, we should use what type of script?

- Single File Plug-in: 3 (12%)
- Binary Plug-in: 4 (16%)
- Standalone Executable Script: 17 (68%)
- Currently, there is no way to access multiple patients with a script: 1 (4%)

In OOP the term Abstraction refers to:

- Properties or fields that we can or cannot change directly: 7 (28%)
- The idea that it is best to display only what is essential for the user: 16 (64%)
- The process of using interfaces: 2 (8%)
- Thinking and not doing when it comes to programming: 0 (0%)
Fall 2019 Symposium ABR SAMs Question Results

**A method refers to:**

17 / 25 correct responses

- The template of what an instance of an object is able to do: 4 (16%)
- An instance of a class: 3 (12%)
- The behaviors of a class that can perform an action or calculation: 17 (68%)
- The private attributes of the class: 1 (4%)

**Debugging refers to:**

17 / 25 correct responses

- A. The process of identifying code that is not acting as expected and correcting it: 4 (16%)
- B. Removing bugs from your house: 1 (4%)
- C. Finding mistakes in the typed code before compiling: 0 (0%)
- Both A and B: 3 (12%)
- **Both A and C**: 17 (68%)
C# has native support for DICOM files.

21 / 25 correct responses

True 4 (16%)

√ False 21 (84%)