USING THE AUDIENCE RESPONSE SYSTEM (ARS)
Question –
As a speaker, I have used an ARS.....

1) Never
2) 1-3 times
3) 4-10 times
4) >10 times
Audience Response System

3 key elements

- Anonymity
- Interactivity
- Enjoyment
ARS – Tool or Fool?

- Effective educational tool
  - Stimulating, interactive format

- Distracting foolish annoyance
  - Disrupts pace of learning
What do you think of the left upper extremity PICC?

1. OK
2. Not OK
3. What left upper extremity PICC?
4. The heart is enlarged
Where do you find the rules?

RSNA CME
Brief Guide to Writing Good Multiple Choice Questions

**BEFORE YOU START:** Aim to test key concepts and vital information from the online course. All questions must include remediation.

**Definitions:**
- **Stem:** the “question” part of the item
- **Distractors:** the incorrect choices
- **Key:** the correct answer

**The Stem:**
Should be “focused”: that is, contain the main idea of the question. (Use the “cover test”: can you cover the options and still answer the question?)

**Do not use** negative constructions:
- A. “What finding is **NOT** associated with...”
- B. “...all of the following **EXCEPT**...”
- C. “Which of the following is **LEAST** likely...”

**Sample Question:**
Where do gastrointestinal stromal tumors most commonly occur? **[STEM]**

- A. Esophagus **[DISTRACTER]**
- B. Stomach **[KEY]**
- C. Small bowel **[DISTRACTER]**
- D. Colon **[DISTRACTER]**

Do use simple wording and sentence structure. No jargon or unusual abbreviations. Include no unnecessary information, and no “red herrings” that might be misleading.

**The Key (correct answer):**
- MUST be 100%, no doubt, accepted as correct
ARS Benefits

- Anonymous polling
- Immediate feedback
- Interactive learning
- Insure understanding
- Improve attentiveness
ARS Benefits

- Increase engagement
- Enhance retention
- Data collection
Possible uses

- Audience demographics
- Diagnostic considerations
- Further imaging choices
- Course evaluation
- Assess learning - pre- and/or post-lecture test
Optimizing ARS utilization

- Advance planning - how and when
- Assure anonymity
- Use warm up question
- Keep responses at 5 or fewer
- Read Q & A before starting timer
Optimizing ARS utilization

- Explain how timer works
- Comment on responses
- Don’t overuse (irregular intervals)
Questions should be.....

- Short
- Unambiguous
- Interesting
- Discussion-provoking
Common Mistakes

- No explanation of how to use system
- Questions too complicated
- Questions insulting to audience intellect
- Questions don’t relate well to content
- No discussion of answer
- No deviation in approach based on answers
What type of practice are you in?
1. Academic
2. Large multispecialty clinic
3. Private practice radiology group
4. Solo practice
Which of the following is associated with cystic fibrosis?

1. Meconium plug
2. Meconium ileus ***
3. Meconium aspiration

OK
Which of the following is associated with cystic fibrosis?
1. Crohn’s disease
2. Meconium ileus
3. Bronchiectasis
4. All of the above
Should hormonal signs or symptoms be expected during or following hepatic embolization in patients with metastatic non-functional neuroendocrine tumor to the liver?

1. Yes
2. No
A patient with Stage IIIIB non-small cell lung cancer undergoes concurrent chemotherapy and external beam radiotherapy to the primary tumor and involved mediastinal nodes to a dose of 66 Gy. A follow up FDG-PET/CT scan performed 3 months after completion of treatment reveals new, diffuse FDG uptake in the lung extending ~2 cm around the prior PET positive masses. The patient is asymptomatic. What is the most likely explanation for the new areas of FDG uptake?

1. Tumor progression
2. Post-radiation inflammation ***
3. Pneumonia
4. Atelectasis

Not OK
Should all patients with metastatic neuroendocrine tumor to the liver be started on octreotide?

1. Yes
2. No
3. Uncertain

Not OK
SAMS

- Given as live presentations
- Single correct answer
- Be as brief and clear as possible
- Read rules and follow them!
Which of the following pancreatic lesions is most likely benign?
Differential Diagnosis includes:

A: Focal fat
B: Hepatic adenoma
C: Hepatocellular carcinoma
D: A or B
E: A, B, or C

Not OK
Don’t waste time!

- 100 people for 30 minutes = 3000 minutes = 50 hours = 6 work days
Conclusions

- Design effective questions
  - Short & unambiguous
- Be prepared to deviate
- ARS – Valuable adjunct to education
Is this available in paperback?