The standard lecture is a time-honored tradition in academia. It can be an effective and efficient way to convey factual knowledge and key concepts in medical imaging education. However, it is not without shortcomings. A lack of student interaction is an issue in many classrooms. Although instructors may attempt to incorporate activities that promote student interaction into their lectures, students typically assume a passive role in the learning process. The popularity of slide-show presentations has only exacerbated student passiveness in classroom lecturing. Far too often, the classroom experience is reduced to an endless display of slides — each containing long bulleted lists and sentence fragments — simply read aloud by the instructor. Efforts to engage students through discussion or collaborative exercises usually result in a handful of participants taking the lead, while many others remain uninvolved. Medical imaging educators face a considerable challenge in keeping students focused in the classroom, so active learning must be the rule and not the exception.

### Audience Response Systems

An audience response system is a type of educational technology that increases interaction during a lecture presentation with the use of “clickers.” Clickers are hand-held devices students use to transmit answers to questions posed by the instructor. The clickers emit a radiofrequency signal measured by a receiver connected to the instructor’s computer. Multiple-choice questions are projected onto a screen using standard word processing or presentation software. The audience response system tabulates the students’ responses, which can be presented in graphs or charts to summarize the results. Instructors can reveal correct answers immediately after students respond to questions or after class discussion.

### Classroom Uses

Clickers may be used in numerous ways to increase student engagement and participation in the classroom. As an icebreaker, a question may be presented to explore students’ baseline knowledge of the topic (see Figure 1).

Using a probing question, the instructor can identify misconceptions students may have about radiation, for example, and students may find comfort in learning they are not alone in their lack of understanding. This also can serve as a collaborative activity if the instructor asks students to pair up, discuss the question, and then select the best response. Alternatively, the instructor may ask students to select what they perceive to be the correct answer. Students discuss the topic and reconsider their responses before the correct answer is revealed on the screen. Referred to as “peer instruction,” this technique has been demonstrated to increase student engagement during lectures and improve comprehension of the material.

Clicker technology is particularly helpful to prepare students for their...