AbstractID: 9754 Title: An update on computer-aided diagnosis CAD: What's next?

Computer-aided diagnosis (CAD) has been developed over the last few decades as a tool to improve diagnostic performance. Computer-aided detection (CADe) promises to help radiologists detect some of the subtle cancers that radiologists tend to miss. After CADe systems are introduced into clinical practice, many clinical studies have been conducted to assess the clinical effect of CADe. Like laboratory observer studies, many of these clinical studies show that CADe helps radiologists detect more cancers. However, all clinical studies do not agree. Controversies have recently arisen that question whether CADe helps radiologists detect more cancers or does more harm by increasing the number of false positives. While laboratory observer studies are very good at controlling biases, potential biases in clinical studies are far less understood and could fundamentally influence the clinical evaluation of CADe. In this presentation, we will review the concept of CAD and summarize laboratory and clinical studies of CADe. We will discuss the pros and cons of various types of clinical studies and discuss their limitations. We will identify some pitfalls that must be overcome to determine the true clinical effect of CAD.

Educational Objectives:

1. Understand the basic concept of CAD.
2. Understand the common types of laboratory and clinical studies of CADe.
3. Understand the limitations of current clinical studies.

Conflict of Interest Statement:

Y Jiang receives research funding from Hologic (Bedford, MA).