The thoracic surgeon in 2015 is confronted with computerized tomographic images which contain nodules of various sizes, shapes, and consistencies and the stratification of these nodules into management bins demands familiarity with the newest pathologic classification systems, technologies for finding the nodules, minimizing the insult to the patient, and deciding how much lung resection is enough or too much. When this is put into the context of screening trials, the issues of overdiagnosis become even more important in the surgeon’s decisions and unfortunately there are no guidelines which help us delineate the natural history of the majority of the CT detected nodules so as to prevent overtreatment. This lecture will concentrate on how surgeons classify these nodules both radiographically and pathologically and the issues that must be confronted prior to the decision for a resection. How these decision relate to the new IASLC Adenocarcinoma Lung Cancer Histologic Classification will be discussed. Novel technologies for tumor localization as well as the pros and cons of available surgical approaches will be discussed. We will also discuss how to minimize the trauma to the patient as well as to use best evidence at this time for how much lung tissue should be resected depending on the characteristics of the nodule. The lecture will also cover how the histology of the lesion may plan in the long term prognosis, and a surgeon must consider whether sublobar resection is appropriate for the given histology. This discussion will also emphasize how this field is rapidly changing, emphasizing that surgeons play an important role in defining future pathways for nodule management.