Reader Performance in Predicting Resectability for Abdominal Malignancy

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Purpose and Rationale
This project focuses on improving radiologists' performance on the interpretation of abdominal CT and/or MRI scans performed to identify patients who are candidates for surgical resection.

CT and/or MRI are often used in patients with known abdominal malignancies (e.g., pancreatic cancer) to determine resectability. Failure to recognize regional or distant metastases may result in unnecessary surgery, which may lead to morbidity, mortality and costs.

Project Resources:
1. Local Staging of Pancreatic Cancer: Criteria for Unresectability of Major Vessels as Revealed by Pancreatic Phase, Thin-Section Helical CT. Lu DSK, Krasny RM, Sayre J. *AJR* 1997; 168: 1439-1443
2. Preoperative Staging and Assessment of Resectability of Pancreatic Cancer. Warshaw AL, Gu Z, Wittenberg J, Waltman AC. *Arch Surg* 1990; 125: 230-233

Project Measures
Metric 1
Numerator: # of patients who were identified by the radiologist as resectable on CT or MRI but were found not to be resectable at surgery
Denominator: # of patients who were identified by the radiologist as resectable on CT or MRI

Baseline Data Collection
Make a plan for selecting cases. For example, you should decide on a specific malignancy, ideally one where the determination to perform resection with curative intent is based entirely, or principally on abdominal CT and/or MRI.

Identify a data collection strategy, for example, using the institutional surgical pathology database. Identify and review all patients over a period of time (e.g., in the past year) who underwent operation with curative intent for the chosen malignancy. Next, determine which of those patients underwent pre-operative CT and/or MRI that were either performed at your institution, or formally interpreted by your radiologists. This group constitutes the study data set.

The number required will vary based on patient demographics, the referral nature of your practice, the areas of expertise of your surgeons, etc. Ideally you should select an indication (i.e., specific malignancy) that is commonly operated on at your institution.

Data Analysis
The goal is to identify the percentage of cases in which the interpreting radiologist suggested that a patient who was ultimately proven to have unresectable disease, appeared to be resectable on the basis of the preoperative CT and/or MRI.

In addition, it may be useful to identify the reasons for incorrect assessment of resectability. For example, size/location of primary tumor, vascular encasement, lymph node metastases, regional or distant metastases, CT scanning technique, etc.

Factors Potentially Influencing Performance
After analyzing the data, identify areas where there is room for improvement. Reflect on your setting and practice and identify factors that may have influenced your results. Potential contributors may include:

1. CT protocol and scanning technique used.
2. Clinical history provided.
3. Perceptual and/or interpretive errors.

Intervention
Team members, should meet to review the cases in which unresectable disease was missed. The review should include a discussion of possible reasons for understaging of the tumor, and a plan for education to address these reasons and improve reader performance.

Post Intervention Data Collection
Using the same data collection strategy as for Baseline Data Collection, collect a similar number of cases and recalculate Metric 1. Review the Post Intervention Data with your project team and compare to Baseline Data. Discuss the effect of specific strategies employed. Develop plan for ongoing performance monitoring.