Why is this important?

This is the first large randomized trial of chest CT for lung cancer screening in smokers. Other screening methods (including chest x-ray) have not been shown to reduce lung cancer death.

Facts:

Over 53,000 current (≥ 30 pack years) and former smokers (quit within 15 years), ages 55-74 were randomized to low-dose chest CT or chest x-ray each year for three years. Management of abnormalities was at the discretion of the patient’s provider.

Per 1,000 patients screened:

- **WITH CHEST X-RAY**, 160 had an abnormal finding, 35 had lung cancer, and 16 died from lung cancer
- **WITH CT SCAN**, 390 had an abnormal finding, 40 had lung cancer, 13 died from lung cancer, and 8 had clinically important complications (sepsis, respiratory failure, pneumothorax)

Harms were similar in the two groups.

Therefore, for every 1000 patients screened with chest CT instead of chest x-ray, 3 fewer will die from lung cancer.

The **Bottom Line**

Screening for lung cancer with chest CT reduced lung cancer death in high-risk smokers, but false positive rates were high and additional testing and harmful effects are not fully characterized.
**Strength of Evidence**

(Adapted from Guyatt G BMJ, 26 April 2008, Volume 336)

This refers to the degree to which the findings of this study are likely to be free of bias.

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<th>Strength of Evidence</th>
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**Tips for Discussion of Results with Patients**

- Screening for lung cancer with chest CT in high-risk current or former smokers who are similar to those in this study can save lives from lung cancer.
- Harms from screening with chest CT or chest x-ray were similar, but may be significantly greater than with no screening.
- Optimal screening duration and frequency are not clear.
- High false positive rates will lead to further testing and potentially invasive procedures.

**References**

1. Reduced Lung Cancer Mortality with Low-Dose Computed Tomography Screening. NEJM 2011;365:395-409

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The Bottom Line summaries reflect the expertise and opinions of the SGIM EBM Task Force as of the date of release of this summary.