

# **Lung Cancer:**

## ***Making the***

### ***Elusive Diagnosis***

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# Not a Clinical Study

While considering the results of this study, readers should remember that these claims constitute only a small subset of the total treatment encounters for lung cancer. Accordingly, the facts and conclusions drawn from the study pertain only to these malpractice cases and not to the general care process for lung cancer in general.

# We will learn about the...

- Current impact of lung cancer in America.
- Major risk factors of lung cancer.
- Pros and cons of the current screening methods.
- Pivotal role of primary care doctors to early diagnosis.
- Essential risk management strategies to improve patient care and reduce the risk of claims.

# Disease Snapshot

- The leading cause of cancer death in US
- More deaths than colon, breast & prostate CA combined
- 213K new cases in '07
- 160K deaths in '07
- Roughly equal men/women distrib

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In 2007, lung cancer remains the leading cause of cancer death in the U.S. In fact, it claims more lives each year than do colon, breast and prostate cancer together. This year, approximately 213,000 new cases will be diagnosed in the U.S. About 160,000 Americans will die from lung cancer this year. Lastly, the disease does not discriminate between the genders: it claims roughly the same number of victims from each.

# Pathology

- 2 main types – small cell & non-small cell
- 85% Lung CAs are non-small cell
  - Includes: adenocarcinoma (40%)
  - Squamous cell (25-30%)
  - Large-cell undifferentiated carcinoma

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In terms of pathology, lung cancers fall into two groups: small cell and non-small cell. About 85% of lung cancers are of the non-small cell variety. This category includes various subtypes, namely adenocarcinoma, squamous cell and large cell undifferentiated carcinoma, which proportionately account for 40%, 25-30% and 10-15% of lung cancer diagnoses, respectively.

# Staging: *Non-small Lung CA*

- Describes how widespread CA is
- “TNM” = tumor, lymph nodes & mets
- Categories range from 0 to IV
- Info then combined to assign “stage”
- 0, IA, IB, IIA, IIB, IIIA, IIIB, IV
- 5-yr survival: I-47%, II-26%, III-8%, IV-2%

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Non-small lung cancer is typically staged (or evaluated to determine the extent of progression) according to the “TNM” system. The “Tumor, Lymph nodes and Metastases” system relies upon blood tests and radiological studies. The radiological tools include CTs, bone density and PET scans.

The “tumor” element indicates the size of the mass(es) and whether they have invaded nearby tissue. The “lymph nodes” component describes any lymph nodes that are involved. Finally, “metastases” describes how widespread the cancer is throughout the body.

# Risk Factors

- Tobacco smoking – causes 87%
- Secondhand smoke – adds 30%
- Family history - 1° relative doubles chance
- Also asbestos, radon, arsenic, etc.

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Tobacco smoking, most often of cigarettes, contributes to lung cancer diagnoses nearly 90% of the time. Exposure to secondhand smoke adds an additional 30% likelihood of a positive diagnosis. According to a recent study, family history of lung cancer in a first-degree relative (i.e., a parent, sibling or child) doubles the chance of a diagnosis. Lastly, exposure to various chemicals, like asbestos, radon and arsenic, substantially increases the likelihood of diagnosis.

# Symptoms

- Persistent cough
- Chest pain, esp. often aggravated
- Hoarseness
- Weight loss & loss of appetite
- Bloody or rusty sputum
- Shortness of breath
- Recurring chest infections
- New onset of wheezing

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The symptoms listed above typically signal the presence of lung cancer. Of course, by the time symptoms actually appear, it is often too late to effectively treat the disease. Thus, the clear focus is on early detection and intervention.

# Screening

- X-ray vs. CT debate continues
- Issue: survival vs. morality rates
- I-ELCAP
- NLST
- Next/last word: '09 NLST

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As of late 2007, the longstanding debate over how to most effectively screen the public for lung cancer still remains unresolved. The hotly debated question is: which diagnostic technology is better suited for large-scale screening, chest x-ray or low density CT?

The pros and cons of each are clear. On the one hand, x-rays are less expensive to perform and interpret, thus more accessible to the general public. On the other hand, CTs are four times more sensitive than x-rays at detecting lung cancers. However, that sensitivity may be detrimental because so many benign lesions are detected that numerous often unnecessary investigative procedures (i.e., scoping and other exploratory procedures) are performed. These procedures are costly and carry their own clinical risks.

Though studied heavily, a definitive conclusion on whether to screen an asymptomatic population has yet to emerge from the voluminous data. On the one hand, the I-ELCAP (or “International Early Lung Cancer Action Program”) posits annual CT screening as the best current option because it allows 80% of lung cancers to be diagnosed at Stage I, when it can still be effectively treated.

On the other hand, the NLST (or “National Lung Screening Trial”) proposes that chest x-ray is the best available technology because the test is cost effective to administer and it does not result in nearly as many follow-up tests, due to its lower sensitivity in detecting benign lesions.

In late 2007, neither test is considered better suited for large-scale screening because neither medium has actually reduced the number of people who ultimately die from lung cancer. However, new insight is expected in 2009, when the NLST says it will release its final research conclusions.

# Case Study #1

- 52 YO w/asthma + 2-pk/day smoking hx
- Pre-op CXR ordered by orthopedist
- Found density
- Rad made follow-up recs
- Report filed; not shown to Dr.
- Pre-op nurse called
- Classic “incidental find” scenario

In our first case study, a 52-year old man with a history of asthma and a two-pack/day smoking habit presented to his primary care doctor with complaints of chronic hip pain. The doctor referred him to an orthopedic surgeon for evaluation and, ultimately, hip surgery.

The orthopedist ordered routine pre-operative tests, including bloodwork and a chest x-ray. The x-ray results showed “ill defined density in the right upper lobe” of the lungs, something that was not seen on previous studies.

Based on this new finding, the interpreting radiologist recommended in his report that the orthopedist follow up with the patient. Unfortunately, because the report cleared the patient for the planned surgery, the orthopedist’s medical assistant simply filed it away in the chart.

At about the same time, the hospital’s pre-operative coordinating nurse called the orthopedist’s office and told the receptionist to make sure that the doctor reviewed the abnormal x-ray result. The receptionist did not document the call, though the hospital nurse did.

Approximately 10 months later, the patient was seen by his internist for right-side chest pain. A chest x-ray at that point revealed a 6 cm mass in the right upper lobe of the lung. Discovery of the lesion led to a diagnosis of Stage IV non-small cell adenocarcinoma. The patient died a year later.

MagMutual settled the claim against the orthopedist for a substantial sum. The risk management issues that emerged included:

- The incidental/accidental preoperative x-ray finding. Though the result did not contraindicate the surgery, the ordering physician still had a duty to review all the preoperative tests and notify the patient of any abnormal findings.
- The radiologist's faulty assumption that the ordering physician would review the report he had sent. Unfortunately, there was no radiology policy to communicate significant abnormalities directly to the ordering physician. The radiologist was thus also implicated in the case.
- The orthopedic office's lack of a policy to document all patient care related phone calls and more specifically, to notify the physician of calls regarding abnormal test results.

# Lung Cancer: *Insurer's Insights*

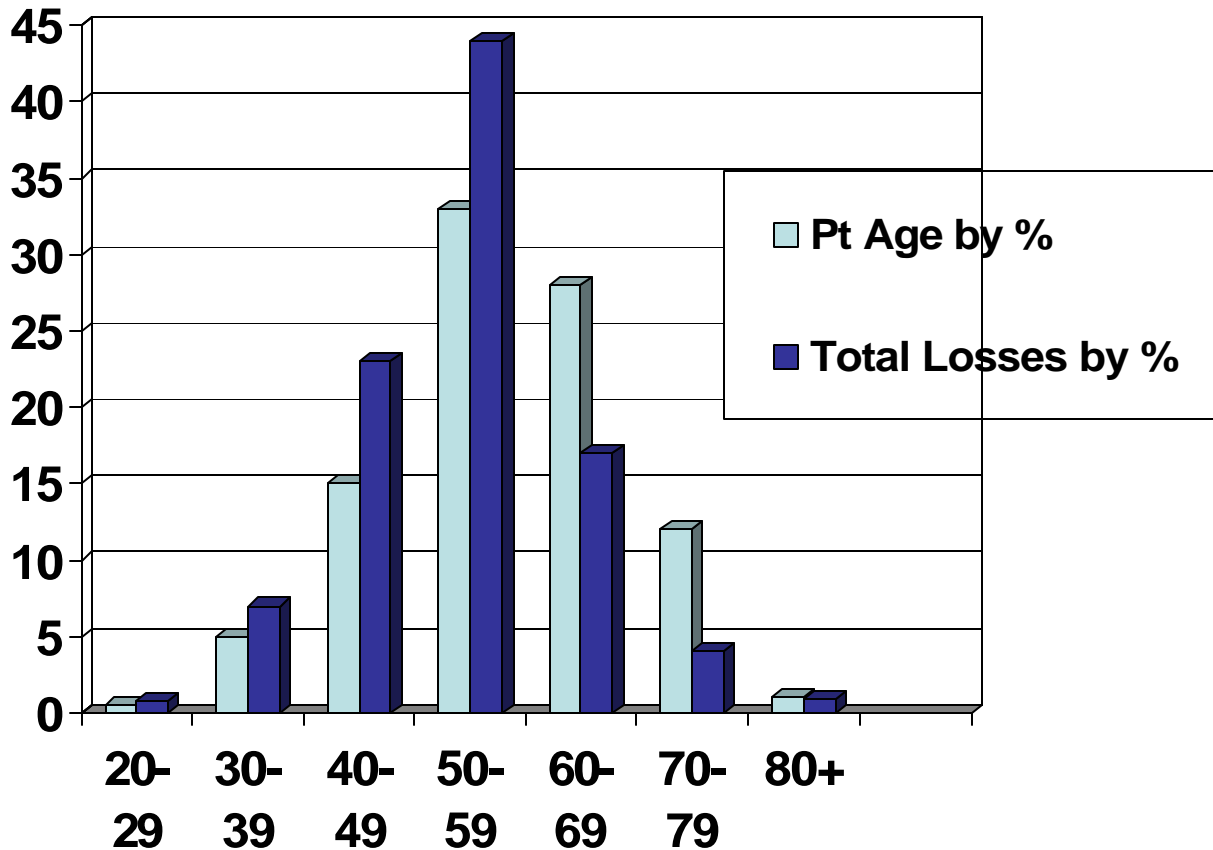
- Huge US healthcare problem
- Thus a huge medical problem
- #2 most common missed diagnosis
- Comprehensive '05 malpractice study
- Included 184 clms from 13 insurers
- Criteria:
  - Delay in lung cancer diagnosis
  - Paid clms
  - Resolved after 1/95

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Lung cancer's dominance as a national healthcare problem has had a profound impact in the professional liability arena. In fact, the disease is the second most frequently missed diagnosis (nearly one of five) in medical malpractice claims, falling between breast cancer and myocardial infarction.

Responding to this reality, the PIAA ("Physician Insurers Association of America"), a mutual insurance industry trade association, completed an in-depth claims study in 2005. The study considered 184 paid claims that arose between 1995 and 2005, and were submitted by 13 insurers. This program considers the findings of the study in detail.

# Who's Suing?



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Just who is suing in the study's claims? Not surprisingly, claimants were an average of 56-years old at the time of diagnosis. Interestingly, the 50-59 year old age group accounted for about a third of the total claims in the study, but nearly half of the total paid losses. This difference resulted from the costly care plans and high amount of lost wages that these patients tended to incur.

# Case Study #2

- Pt admitted to hosp for work-up
- CXR interpd by radiologist
- CXR report not added to chart at dischg
- Chart doesn't mention XR at all
- 22 mos later, pt presents to ER
- Classic 'failure to follow-up' scenario

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Our second case study involves a 59-year old female patient who presented to her primary care physician with complaints of chest tightness and coughing. Following the doctor's exam, the patient was admitted to the hospital by the PCP for further workup to rule out MI. The tests included a thallium stress test and a chest x-ray.

The x-ray was done and interpreted by a radiologist. It showed a right upper lobe mass described in the report as "possible carcinoma". The report also recommended follow-up x-rays and a CT scan.

The x-ray report was not added to the patient's chart before her discharge. In fact, the discharge summary only noted that the results of the thallium stress test were pending.

Two weekends after discharge, the patient was seen back in the PCP's office. The visit note mentioned that myocardial infarction had been ruled out. Further, the doctor started the patient on Tagamet and ordered an upper GI study. The note did not mention the chest x-ray or its suspicious finding at all.

Over the next two years, the doctor saw the patient an additional five times for various issues, including a cough diagnosed as COPD, right shoulder pain and a smoke cessation consultation. At no point was the chest x-ray apparently discussed or even referred to.

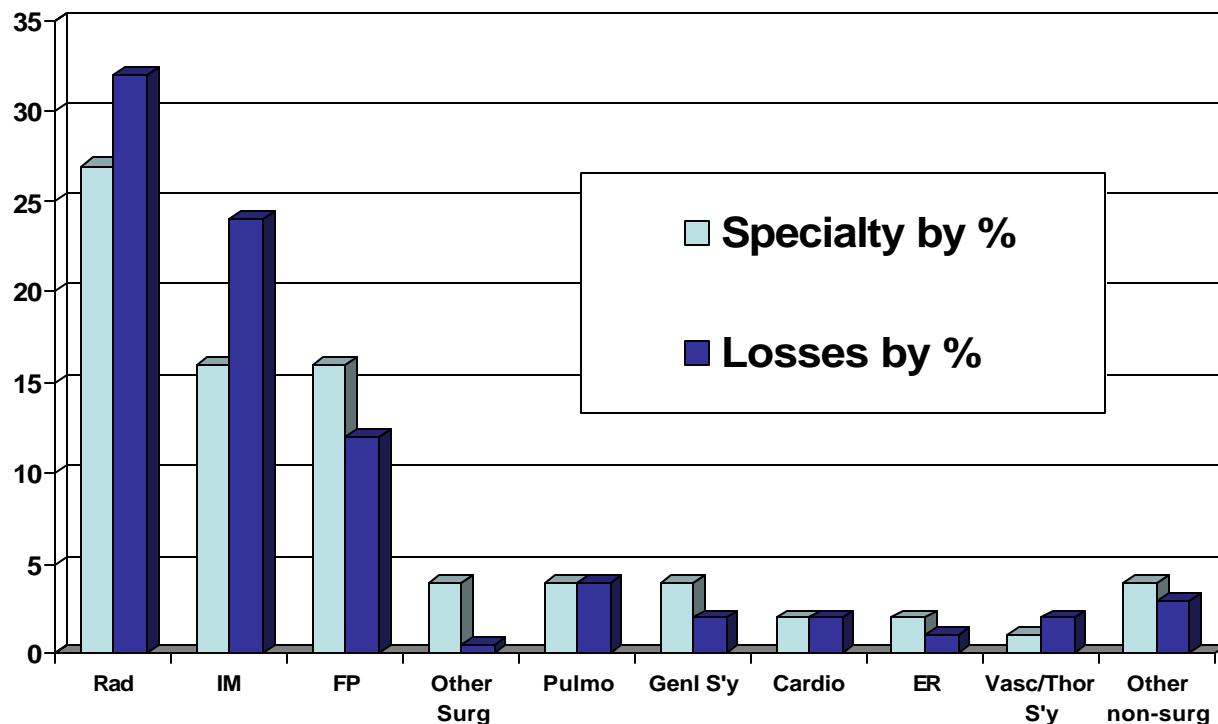
22 months after the initial x-ray, the patient was admitted to the ER for difficult breathing. There, she was finally diagnosed with lung cancer.

Several months later, the patient died and the family filed a lawsuit. During discovery, the plaintiff's attorney learned that the x-ray report had been faxed to the PCP's office on the day that it was dictated.

The case ultimately led to a sizeable lump sum settlement. Regardless, various risk management lessons can be gleaned from it. First, the failure to follow-up resulted from the absence of an 'owner' of the patient's care, who could coordinate between the various doctors.

Second, the radiologist failed to fulfill his duty, when he didn't communicate the potentially serious abnormal x-ray results to the ordering physician. By simply relying on the report to communicate, he missed an opportunity to prevent the disastrous

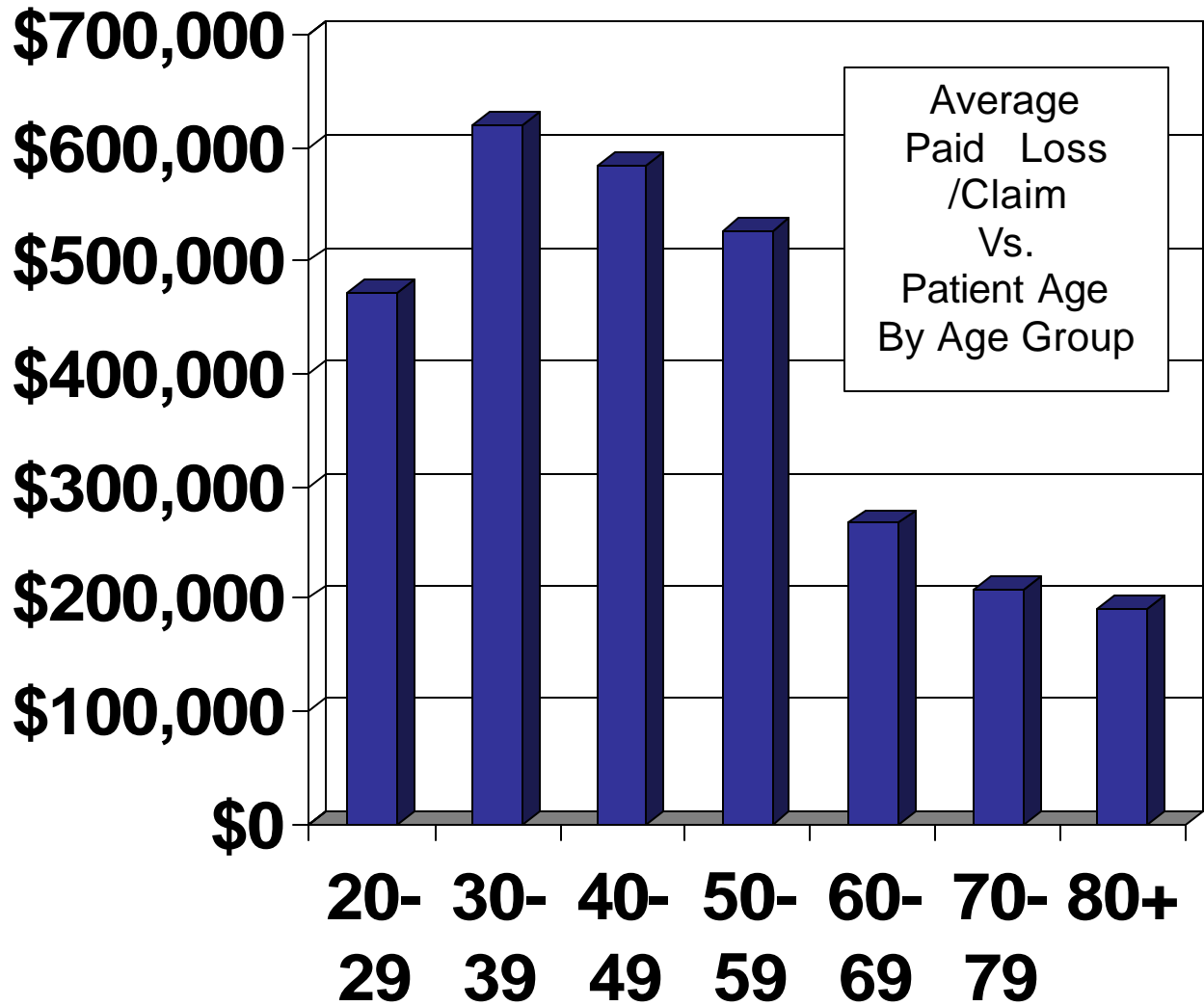
# Which Specialties Get Sued?



Radiology earned the top place on this list, followed by the primary care specialties of internal medicine and family medicine. Two common scenarios frustrated radiologists. One was where cancer was visible on a diagnostic image, but was missed and thus not diagnosed. Second and more often, the disease was observed on a diagnostic image, but the finding was neither noted in the interpretive report nor reported directly to the ordering physician because it was not the primary reason for the study. This “incidental find” scenario frequently came up in the surgical screening process.

The graph above points out another interesting phenomenon: a disparately high amount of paid losses were borne by internal medicine physicians, compared to that specialty’s proportion of claims (24% vs. 16%). This difference suggests defensibility problems with the claims, which would ultimately lead to a greater number of paid claims.

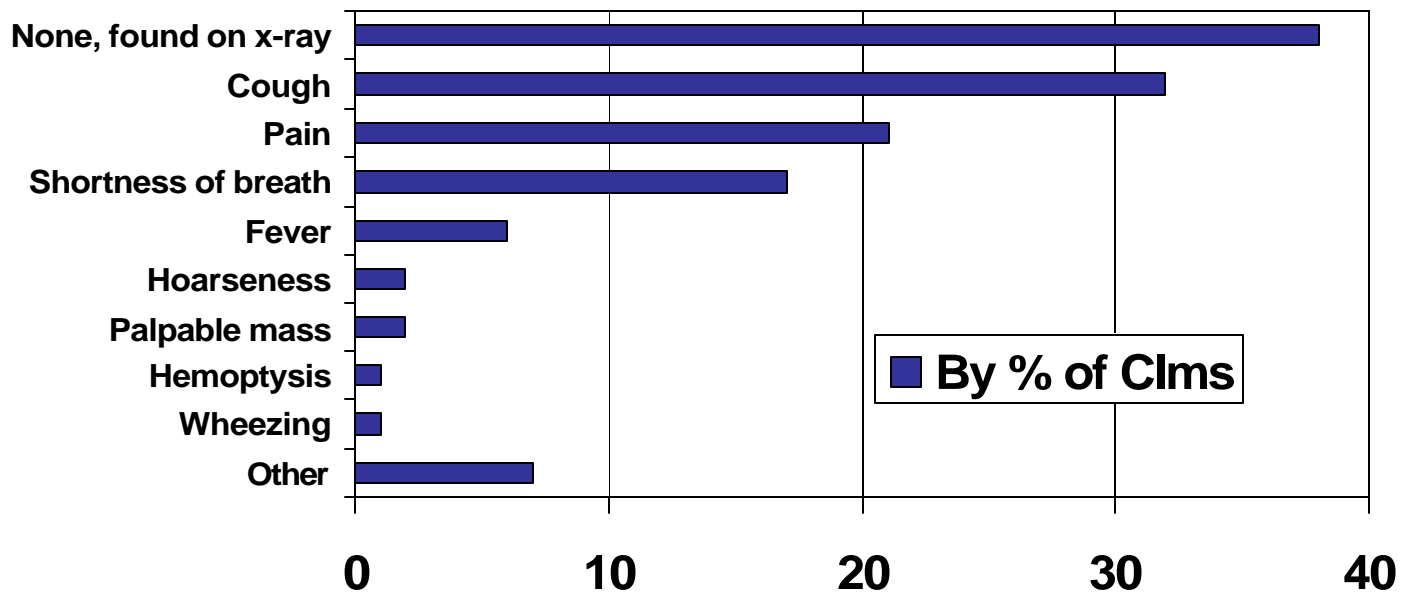
# How Big are the Losses?



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The average paid loss per claim in the study was \$367,000. The 30-39 year old age group accounted for the highest average paid loss at \$620,000/claim. Of course, the payouts dropped according to age because of the reduced amount of medical expenses, and lost present and future wages.

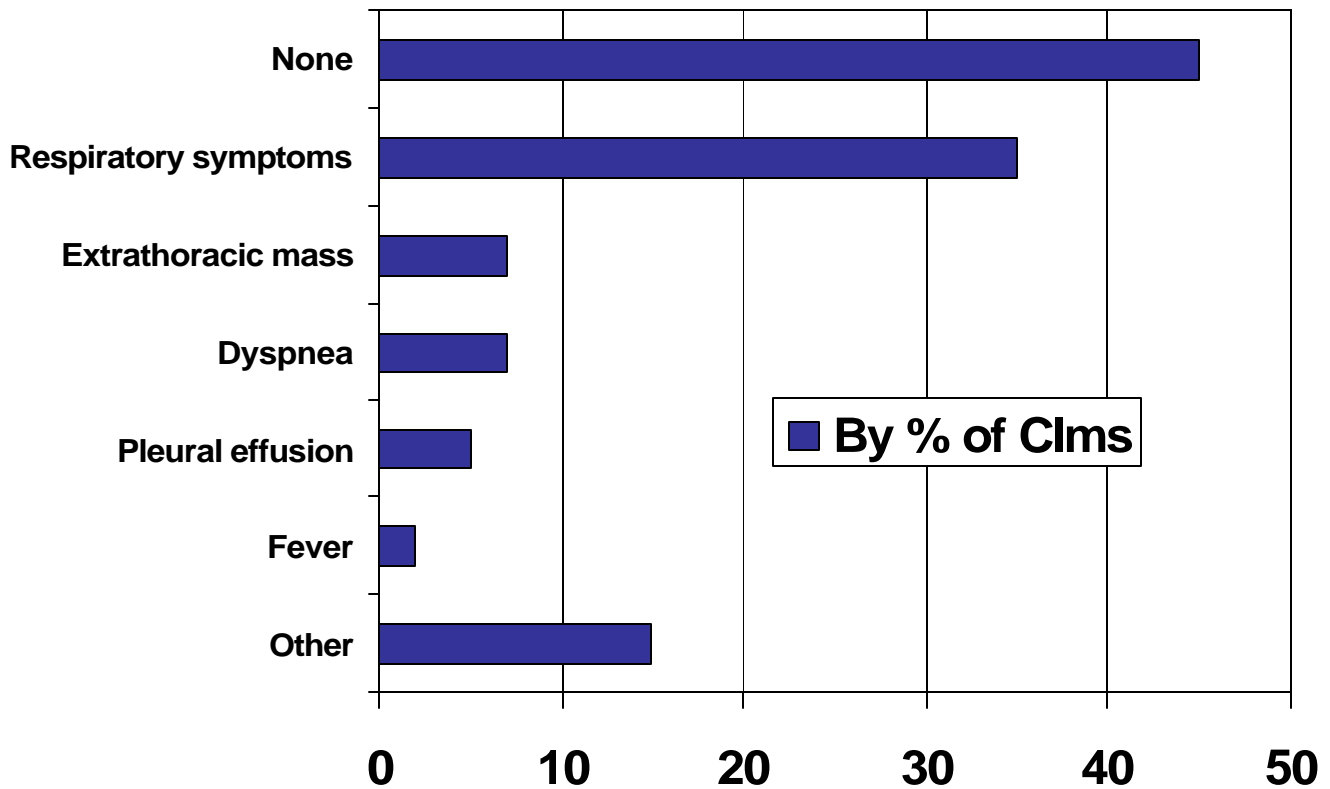
# Presenting Symptoms



The most common presenting symptoms in the study claims wasn't a symptom at all. They were 'incidental' or 'accidental' finds on x-rays, where the patient either had no symptoms or totally benign-appearing symptoms. This occurred about 40% of the time. A persistent cough was the next most common symptom.

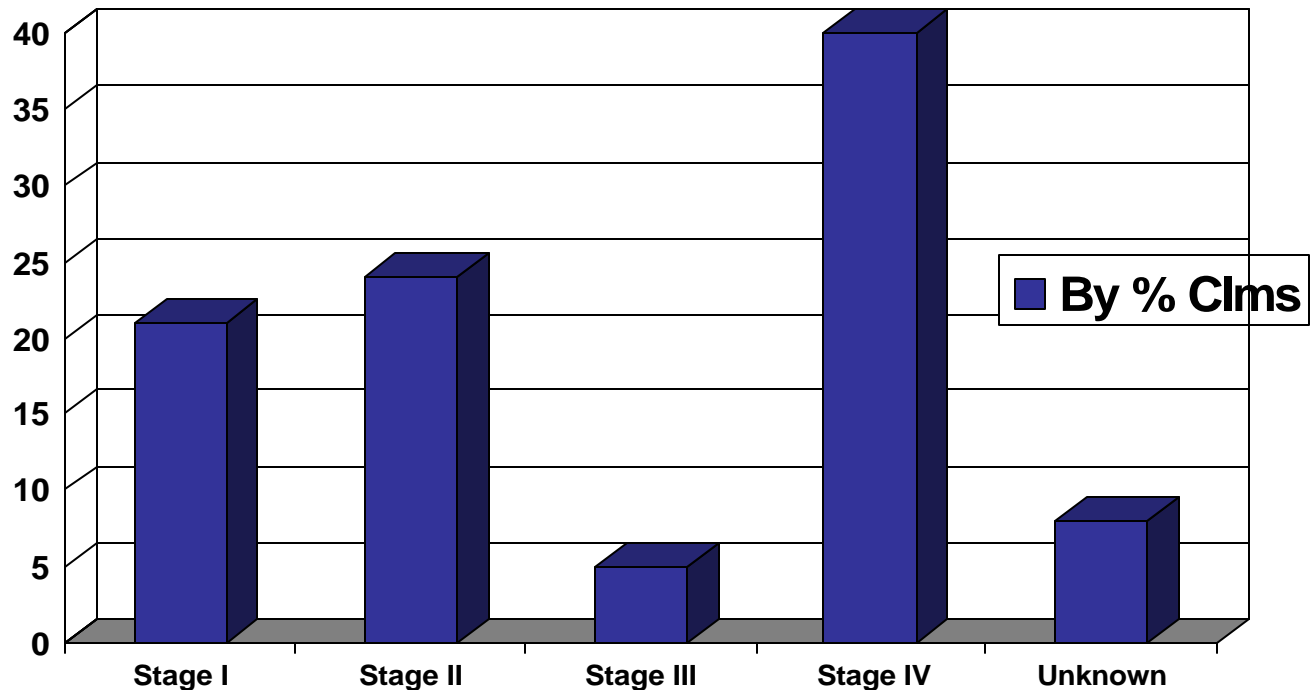
Several key lessons come from this chart. First, a high level of clinical suspicion continues to be the physician's best tool to avoid missing or delaying a diagnosis. Second, when a physician reads or overreads a chest x-ray, they shouldn't limit their diagnostic evaluation to merely the presenting symptoms. Rather, they should scrutinize the entire image for abnormalities. Third, primary care physicians should not hesitate to obtain radiological overreads of x-rays.

# Initial Findings



The study claims were evaluated according to initial findings by the treating physicians, a factor which often gives an early indication of the selected therapeutic approach. Interestingly, in nearly half of the cases, there were no initial findings to support a lung cancer diagnosis. This factor strongly underscores the importance of maintaining a high index of clinical suspicion because by the time symptoms appear, it's often too late to effectively treat the disease.

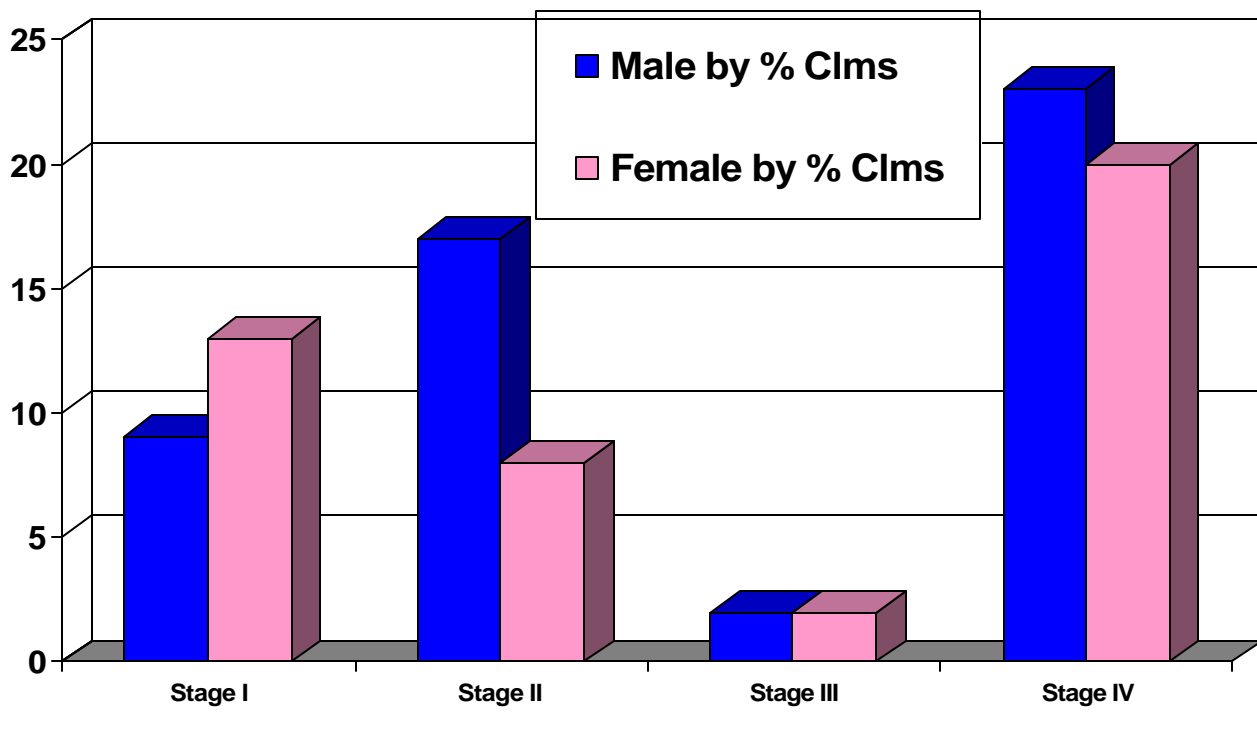
# When Was CA Diagnosed?



In the study's claims, final diagnosis was typically made only at Stage IV about 40% of the time. This is usually too late to effectively treat lung cancer.

In fact, by this time most patients had developed "distant metastases". Moreover, at that point, an average of 14 months had passed between first presentation and the final diagnosis (i.e., the "diagnostic interval"). Interestingly, roughly the same proportion of claims (about 20%) included diagnoses during Stages I and II.

## When Was CA Diagnosed? (By Gender)

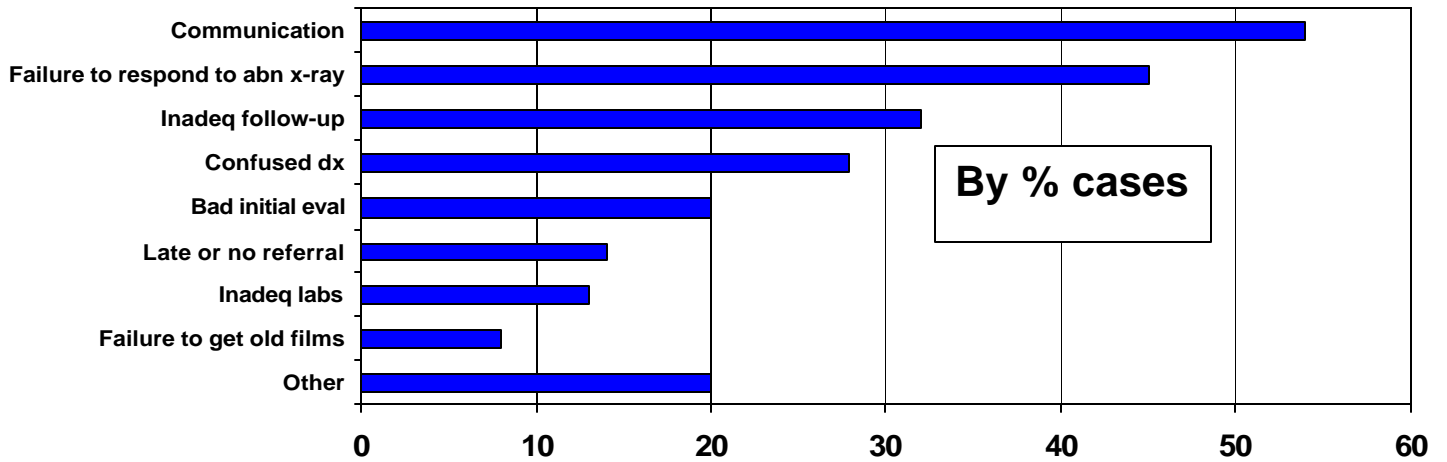


Overall, some 40% of the study's claims involved diagnoses at Stage IV, while another roughly 20% each involved diagnoses at Stages I and II.

The distribution is quite different when diagnosed patients are broken out by gender. The gender distribution was roughly equal for patients diagnosed at Stages I, III and IV. However, Stage II showed a great disparity. Men were twice as likely as women to be diagnosed at this stage.

This disparity suggests that lung cancer is simply not considered as much for women patients as for men. Of course, such handling flies in the face of the evidence, which shows that the disease has no gender bias whatsoever.

# Why a Delay in Diagnosis?



Not surprisingly, “delay in diagnosis” was alleged in nearly every claim in the study. Often, more than one reason was suggested as the cause of the delay. Communication failures occurred in over half the claims. Of course, communication breakdowns remain a huge issue in medicine generally, as they occur in 40% of claims overall.

The communication glitches were dynamic in nature. Roughly half occurred between doctors and patients. Another third arose in doctor-doctor interaction.

“Failure to respond to an abnormal x-ray” also figured prominently, arising in nearly half the claims. This typically meant that earlier films, which may not have been reviewed for comparison, showed abnormal findings.

Lastly, a third of claims included “inadequate follow-up” by the doctor. This frequency nearly matched “confused diagnosis”, with the most commonly confused diagnoses being congestive heart failure, allergic rhinitis and unresolved pneumonia.

# Pt's Contributing Factors

- Occurs in about 11% of claims
- 40% involved pt's failure to pursue follow-up
- 18% involved refusal to undergo a CT scan or other test
- 72% of 'contributing pts' were male
- Males usually ignored the advice of their drs

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Patient behavior contributed to a bad outcome in about 11% of study claims. While not proportionately significant, the underlying causes of these claims do shed light on some pervasive issues.

For example, 40% of 'contributing factor' claims involved the patient's failure to pursue follow-up. Another 18% involved patient refusal to undergo a CT or other diagnostic test.

Gender, too, played a role. Nearly three-quarters of these claims involved male patients. Of the remaining female patient claims, roughly half refused diagnostic testing.

A certain picture emerges from these statistics. Specifically, some patients will passively resist repeated attempts to continue their care. In these cases, it is important to carefully document the efforts. Moreover, after good faith attempts have failed, it is crucial to send a letter to notify a patient of the potential consequences of their behavior.

# Most Common Causes of Suits

- Recognized sign or symptom receives inadequate evaluation.
- Test findings missed or not followed through to resolution.
- Patient failed to follow through on physician's advice.

# Risk Management Recommendations

- Don't automatically rule out lung CA for nonsmokers.
- Don't automatically dismiss nonspecific symptoms as due to common, minor diagnoses. Follow all symptoms through to diagnostic resolution.
- Abnormalities detected on chest x-rays or other diagnostic tests done for other reasons must receive complete evaluation.

# More Recommendations

- A normal chest x-ray does not exclude lung CA. Patients with suggestive symptoms require further testing. Consider referral to a pulmonologist.
- All x-ray reports should be initialed by the doctor before filing in the chart.
- Compare current radiological images to all prior studies, not just the most recent ones.
- Urgent or significant findings should be communicated directly by the radiologist to the ordering physician.

## Conclusion

In 2007, lung cancer remains the leading cause of cancer death in the US. The clinical community continues to grapple with finding the best method for largescale public screening, which will hopefully lead to fewer lung cancer deaths overall. That debate is expected to be resolved in 2009.

In the meantime, bad outcomes continue to occur, largely due to preventable causes. Implementing the practical risk management recommendations in this CME activity will almost certainly reduce the likelihood of a preventable bad outcome. This improvement offers patients and physicians significant benefits.

## References

- “Lung Cancer Claims Study”, Physician Insurers Association of America, 2005.
- [www.cancer.gov](http://www.cancer.gov)
- [www.ielcap.org](http://www.ielcap.org)
- [www.cancer.gov/nlst](http://www.cancer.gov/nlst)
- [www.cdc.gov](http://www.cdc.gov)

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