

Care Transitions in a Lung Cancer Patient

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Mr. L is a 64-year-old man who presents to continuity clinic to establish care with a new provider for his chronic medical conditions. His medical history is significant for coronary artery disease, severe peripheral artery disease, diabetes, and hypertension. His surgical history includes coronary artery bypass grafting and multiple lower-extremity bypass surgeries. These procedures were complicated by graft occlusion, extensive critical illness, and ultimately bilateral leg amputations. He has a 20 pack-year cigarette use history, but he quit several years ago. In the last year he has been seen in ophthalmology, cardiology, and physical medicine clinics. Mr. L has also presented to urgent care for medication refills and to the resident walk-in clinic for right shoulder pain. At that time it was noted that Mr. L seemed to be “lost to follow-up,” and an order was placed for him to be scheduled with his new resident primary care provider (PCP).

Mr. L knew that his prior resident physician had left clinic and that he would have a new assigned resident PCP. He has been a patient in the internal medicine resident clinic for four years and has had four resident providers during that time, so this is not his first transition. His last primary care appointment was 12 months ago. His new resident PCP received no written or verbal hand-off communication regarding this gentleman from the prior resident provider.

Mr. L's main concerns at the time of his first appointment with his new provider are elbow pain and medication refills. The resident's main concern is a chest radiograph from a disability clinic visit showing a 1.9 cm left upper-lobe lung nodule not seen on earlier chest imaging. This test was

performed 12 months ago, and there is no documentation of communication of test results or further work-up.

Transitions of care are currently a hot topic of investigation and intervention. Communication lapses and prescribing errors are sources of adverse patient outcomes and increased costs after hospital discharge.^{1,2} Increased attention has been focused on hand-off communication, medication reconciliation, and education of patients during transitions. This case involves a predictable but less studied event: the transition of the care of a patient between resident providers in a primary care teaching clinic. The American Board of Internal Medicine reports that there were 7,299 categorical third-year internal medicine residents in the United States in 2012.³ If their panels contain 50 to 100 patients, there are 350,000 to 750,000 patients of graduating internal medicine residents each year. If we consider other disciplines with continuity clinics (e.g. pediatrics, psychology, and family medicine), the number likely exceeds 1 million patients annually. While the literature examining this topic is growing, it is dwarfed by the volume of research involving the in-patient arena. Interventional investigations are rare.

Although there are many complex medical issues in this patient's history, the resident PCP focuses the discussion with Mr. L on the abnormal chest x-ray. The patient reports never receiving the results of the chest radiograph despite having seen the ordering physician in the disability clinic after the results were available. The results typically would have alerted to his previous resident PCP and the supervising attending. This results reporting would have allowed the prior PCP

and/or attending to react to the results even if they had not ordered the test. Unfortunately, both providers had left the health care system prior to the chest radiograph being ordered. In discussing the lung nodule with the patient and after considering its size, radiographic appearance, and location as well as the patient's smoking history, a CT scan is ordered.

Unfortunately this case contains prime examples of adverse events documented in transitions in resident clinics. One recent study found large numbers of patients miss the first appointment with their new provider and end up seeing providers who are not assigned to them. ER visits and hospitalizations are increased in the year after a transition from a graduating resident to a new resident provider.⁴ That same study found that, six months after the transition, more than half of tests ordered by previous providers had no documented follow-up.⁴ A study of patient perceptions found deterioration of relationship and rapport, which is not a surprise.⁵ In this case, 12 months passed before Mr. L had an appointment with his new resident PCP. This long interval led him to visit an urgent care clinic for medication refills and seek care from non-assigned providers in walk-in clinics. Most notably, there was substantial delay in diagnosis and treatment when a radiology test resulted after his provider had left.

Computed tomography of the chest reveals that the left upper-lobe nodule has grown to a 4.2 cm mass. There is no evidence of adenopathy or metastatic lesions on this imaging. Lung cancer is considered the most likely etiology. This diagnosis is further discussed between the patient and

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his new resident provider. Radiologic staging with PET scanning and MRI reveal no distant metastases. The mass is FDG-avid on PET scan. An urgent consultation to pulmonology is ordered. Based on the pulmonologist's recommendations, Mr. L undergoes CT guided biopsy of the mass.

Mr. L and his family expresses anger over the delay in diagnosis caused by lack of appropriate follow-up after the transition of care. They are, however, appreciative of the new provider's identification of the problem, efficient work-up, and frank discussion of diagnosis and next steps.

Even before the radiologic staging, the most likely diagnosis—based on the lesion's size, location, and growth—is lung cancer. The smoking history and PET characteristics increase the pretest probability greatly. In appropriate candidates with no evidence of metastatic disease, it would be acceptable to proceed to resection of the mass rather than biopsy. Surgical excision is the preferred procedure in a patient with a solitary pulmonary nodule greater than 8 to 10 mm without biopsy-proven malignancy if suspicion for malignancy is high based on clinical and radiographic features, if the nodule is hyper-metabolic on FDG-PET imaging, and if a fully informed patient prefers undergoing a definitive diagnostic procedure.⁶ Persons proceeding to resection need to have acceptable cardiovascular function to tolerate the procedure and suf-

ficient lung volumes by pulmonary function testing to permit excision of lung tissue surrounding the lesion. If a patient is not a surgical candidate, guidelines recommend biopsy confirmation of malignancy in patients desiring treatment.⁶ In this case, the patient's extensive comorbidities made him a poor operative candidate. He opted to proceed with biopsy of his lung mass.

Pathology confirms the diagnosis of adenocarcinoma of the lung, stage IB (T2aN0M0). Just as his severe cardiovascular comorbidities preclude resection rather than biopsy at the diagnostic stage of care, his poor operative candidacy precludes any surgical treatment of his malignancy. After extensive discussion, Mr. L elects to undergo radiation therapy for treatment of his lung cancer.

Key Points

1. Outpatient transitions of care in resident continuity clinics affect hundreds of thousands of patients annually. Research on these transitions of care is limited, and hand-off communication is not common.
2. Resident clinic transitions of care have been linked to adverse patient events, including missed test results, increased hospitalizations, and detrimental effects on patient-doctor relationships.
3. Surgical excision is the preferred management approach of a solitary pulmonary nodule in

selected cases. In patients who are poor surgical candidates but desire treatment, tissue biopsy is recommended.

References

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