Flu season is well underway as anyone looking at the nightly news is aware. According to the CDC pneumonia and influenza mortality in this last period exceeds our epidemic threshold. Since October there have been nearly 9,000 laboratory-confirmed hospitalizations for influenza, the highest rate, among adults over age 65 (136.5/100,000 population); patients who frequently (75%) have other medical problems (co-morbidities). While the diagnosis of influenza seems kinda straight-forward based on these numbers, the reality is that physicians misdiagnose influenza a lot. But does it matter?

A study released in the last week looked at 1422 adult patients admitted for respiratory problems to one academic and three community hospitals. The patients’ physician determined whether they were tested for influenza but the researchers tested all patients so they could determine the number of missed diagnoses and the associated patient factors. Researchers also queried the patient to decide what proportion presented to the hospital with an “influenza-like illness” — consisting of a cough and/or a sore throat and temperature of 100 F or higher. They found

- Academic centers screened more patients (41%) than the community hospitals (20%)
- 43% of patients with laboratory-proven influenza were not tested by their physician for the flu
- Older patients, especially those with known heart and lung problems, e.g., asthma or chronic obstructive pulmonary disease were less frequently tested
- Younger patients, without a history of respiratory disease, but with influenza-like symptoms were most likely to be tested
- 97% of testing was a rapid antigen test, 7.3% underwent viral cultures, and 8.5% utilized testing with reverse-transcriptase polymerase chain reaction (RT-PCR)

With only 43% of patients with influenza being tested and identified diagnosis is essentially a coin
toss. What is going on? It is a simple lesson in the art, not science of medicine.

The sound of hoofbeats

The old medical adage, “when you hear hoof beats, it is rarely zebras” is at work here. Physicians search for the more common problems first; enlarging our search when patients do not respond to our initial treatment. For older patients, who are less likely to have those vague flu symptoms but more likely to have known heart and lung disease (remember the 75% of co-morbidities in the CDC report) there is a ready explanation. Because most viral illness will pass in a few days, whatever misdirected treatment we have initiated will be assumed to have "treated" the problem - so there is no reason to look further.

On the other hand, those younger adults more frequently come to the hospital complaining of flu-like symptoms and have no other medical problems. Flu is the more likely explanation in this case, and so therapy is directed towards that possibility. The difference in how physicians evaluate these older and younger patients for flu testing is an excellent example of how our prior expectations influence our decision making. But it does not explain entirely why so few patients were tested for flu at all.

Physicians face another diagnostic dilemma, what test to perform. Ideally, a test gives you an accurate result promptly, to start or alter therapy. Doctors have three testing options. Rapid antigen testing looks for evidence of Influenza A and B components (antigens) in respiratory fluids. The test is inexpensive, $16, and results are available in 15 minutes; but there is a high incidence of false negatives - antigen being present and not reported. As a result, its reliability is lowered. Viral cultures are the oldest, most reliable test, but it takes 3-10 days to get results. The treatment window for anti-viral therapy is 48 hours after onset of symptoms, so the delay in getting the information limits its clinical usefulness. Reverse-transcriptase polymerase chain reaction (RT-PCR) searches for influenza RNA and is more accurate than rapid antigen testing. Results can be available within 8-12 hours, certainly within the therapeutic window for anti-viral therapy; but it is expensive at $116, too expensive to use as a screening test.

You would think diagnosing the flu was pretty easy, but the study and the problems associated with the available diagnostic tests show that medicine, for all its guidelines, remains the art of the practitioner. Most viral illness is self-limiting, the effect of anti-virals is at best helpful but rarely curative. The best advice remains get a flu vaccination, drink lots of fluids, and call me in the morning.

[1] Discharge diagnosis in these patients included pneumonia, bronchitis, chronic obstructive pulmonary disease, upper respiratory infection, influenza, asthma, viral illness, shortness of breath (dyspnea), acute respiratory failure, pneumonitis or fever with or without a cough, shortness of breath, sore throat, nasal congestion.
