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A Bottom-Up Approach Addressing Patient Care and Differential Diagnosis Amidst the Covid-19 Response

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Abstract

Patient care often refers to the broad spectrum of care, prevention, and treatment that a provider delivers, while the point of a differential diagnosis is to make a distinction between 2 or more conditions that share similar signs or symptoms. A broad differential should be considered for every single patient who is currently ill (eg, all patients with respiratory illnesses); without it, there will likely be an increase of misdiagnosis, unnecessary patient suffering, and an influx of patients to the emergency department. The COVID-19 response has forced many of these basic medical values aside, like providing differential diagnosis or practicing bedside manner through social interaction, while physicians struggle to continue care for patients. As a result, newly formed hospital and clinical policies may have dangerously traded everyday diagnosis and treatment of patients for the pandemic and quarantine recommendations. This type of assumptive medicine is based on a singular differential that can be detrimental to patients, who are more likely affected with more common illnesses, like bronchitis or pneumonia—or perhaps, even more threatening illnesses, like a pulmonary embolism, COPD exacerbation, congestive heart failure and even lung cancer. Although these new policies and reactions to COVID-19 are proactive, these actions could be at the cost of providing quality patient care for people who have not contracted COVID-19.

Keywords

Covid-19, differential diagnosis, respiratory illnesses, misdiagnosis, pandemic

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During my medical school training, I (TZ) learned that there are 2 major principles that separate average physicians from great physicians: (1) there is nothing more important than patient care and (2) always have a broad differential diagnosis for each patient. Patient care often refers to the broad spectrum of care, prevention, and treatment that a healthcare provider delivers, while the point of a differential diagnosis is to make a distinction between 2 or more conditions that share similar signs or symptoms.[1] A broad differential should be considered for every single patient who is currently ill (eg, all patients with respiratory illnesses); without it, there will likely be an increase of misdiagnosis, unnecessary patient suffering, and an influx of patients to the emergency department.

The COVID-19 response has forced these 2 basic medical values aside, like providing differential diagnosis or practicing bedside manner through social interaction; as a result, newly formed hospital and clinical policies have dangerously traded everyday diagnosis and treatment of patients for the pandemic. While some of this is certainly necessary, some physicians have restricted and even refused to see ill patients, especially with common complaints of fever, fatigue, and difficulty breathing. This conglomeration of symptoms has fallen under the guise of untested and primarily assumed coronavirus; thus, resulting in self-quarantine as the best treatment. This type of assumptive medicine is based on a singular differential that can be detrimental to patients, who are more likely affected with more common illnesses, like bronchitis or pneumonia—or perhaps, even more threatening illnesses, like a pulmonary embolism, COPD exacerbation, congestive heart failure and even lung cancer. Although these new policies and reactions to COVID-19 are proactive, these actions could be at the cost of providing quality patient care for people who have not contracted COVID-19.

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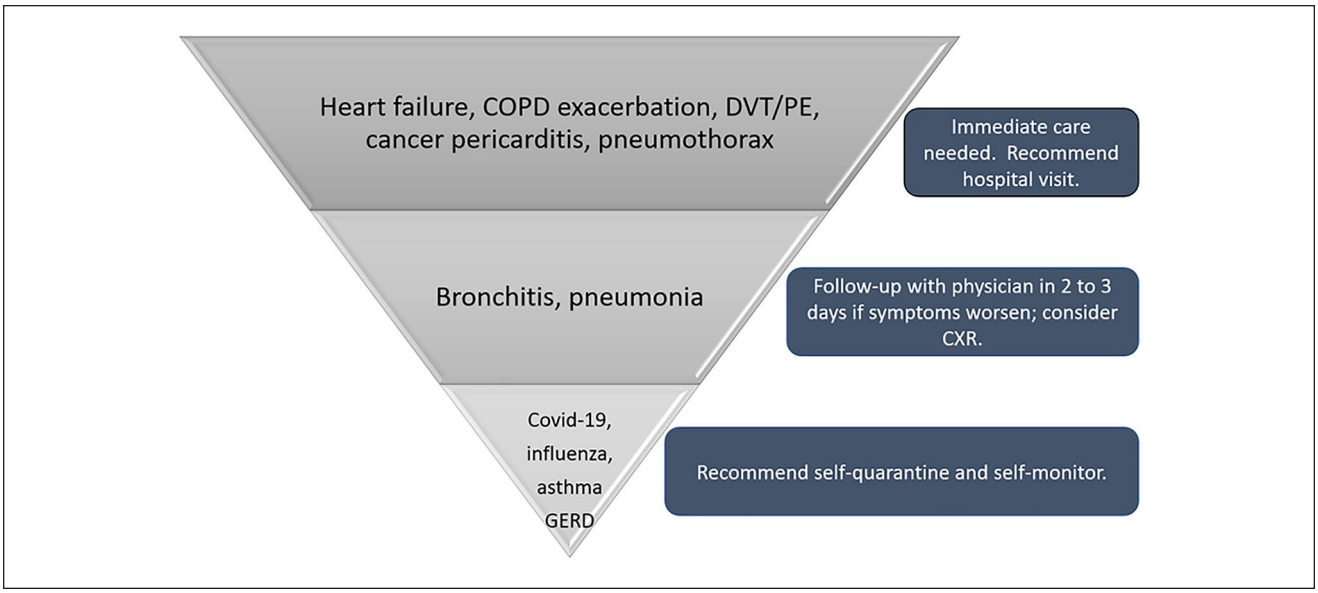

Figure 1. Example of respiratory illness differential diagnosis and action from a bottom-up approach.

In 2019, there were 1.3 million visits to emergency departments due to pneumonia.[2] Acute bronchitis accounts for 10 000 000 office visits annually, with 95% of these cases being secondary to viruses (eg, allergens, irritants, and bacteria).[3,4] Pulmonary embolisms contribute to 100 000 deaths each year.[5] Most patients who hold the diagnosis of COPD or CHF often know the signs and symptoms of an exacerbation, but with over 12 000 000 undiagnosed patients with COPD and 500 000 new cases of CHF each year, patients may not understand the cause of their symptoms. Lastly, there are approximately 235 000 new cases of lung cancer each year.[6] These numbers of respiratory illnesses provide evidence that a differential diagnosis is not only important in an everyday physician's life, but even more so as the COVID-19 response continues to affect the world.

Physicians typically rule out common viral and respiratory illnesses through simple physical exams, history-taking, and imaging (eg, in-house chest x-rays). This has recently changed, as office visits have been replaced with video telemedicine or simple phone calls, thereby eliminating important aspects of a standard practice of medicine. Because of new policies enacted by hospitals or government that focus on discouraging people to physically seek care, many physicians can no longer touch, listen, or physically gauge a patient's illness. This makes it difficult to refer patients for imaging and labs. Without these tools, many patients are told to stay at home and quarantine themselves without ever receiving an evidence-based diagnosis. The assumption that these patients have COVID-19 instead of other illnesses can easily lead to the exacerbation of symptoms, medical complications, and inescapable hospital admissions.

In order to combat the primary presumption of COVID-19 as the most likely diagnosis, providers could attempt a contradictory approach to typical diagnostic training, which focuses on the most common illnesses first (eg, "common being common"). A new strategy could be a bottom up approach (Figure 1), which first eliminates the "zebra" diagnoses and then removes other diagnosis until only "horses" remain. This approach can ensure all patients are screened for more serious diseases that require supplemental tests and treatment, wherein being diagnosed in a timely manner can be imperative for improved outcomes. After determining a patient is less likely to be suffering from a more serious disease process, physicians can elect to take a "watch and wait" approach, having patients check-in if symptoms worsen. That said, ordering a simple, inexpensive chest x-ray could allow physicians to make a much more definitive diagnosis, while still adhering to social distancing by avoiding physicians, clinics or hospitals.

Regardless of the pandemic looming in the background, evidence-based diagnosis is owed to each patient who is experiencing cough, fever, shortness of breath or difficulty breathing, fatigue, etc. Additionally, primary care physicians and other healthcare providers should be cognizant of these changes that displace medical values and goals for patient care; this is a time to remember and implement the most basic training received in medical school—patient care comes first, alongside the ability to keep patient differentials broad to avoid diagnosing illnesses through

assumption, rather than the evidence-based practice of medicine.

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TZ conceptualized and wrote the first draft; TRZ edited and wrote the follow-up drafts, created the figure, and submitted the paper.

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