

---

# Respiratory Medicine

## Seven Things Physicians and Patients Should Question

by  
Canadian Thoracic Society  
Last updated: March 2021



### 1 **Don't initiate long-term maintenance inhalers in stable patients with suspected COPD if they have not had confirmation of post-bronchodilator airflow obstruction with spirometry.**

A diagnosis of COPD should be considered in any patient who has dyspnea, chronic cough, and/or sputum production and an appropriate history of exposure to noxious stimuli. However, not all patients with these symptoms have COPD, and a spirometry demonstrating a post-bronchodilator forced expiratory volume in one second to forced vital capacity (FEV1/FVC) ratio < 70% (or less than the lower limit of normal, if available) is required to make a definitive diagnosis. Starting maintenance inhalers without first objectively diagnosing COPD results in unnecessary treatment in those patients who do not actually have the disease. In turn, this exposes these patients to both the side-effects and the cost of these medications, and might delay the appropriate diagnosis.

### 2 **Don't perform CT screening for lung cancer among patients at low risk for lung cancer.**

CT scan screening has no proven benefit in patients who are not at high risk for lung cancer, regardless of age, smoking history or other risk factors. Low dose chest CT screening has been found to reduce lung cancer mortality in a well-defined population of patients at high risk for lung cancer, defined by age 55-74, at least a 30-pack year history of tobacco use, and smoking within the last 15 years. However, screening is also associated with several harms, including false-negative and false-positive results, incidental findings, overdiagnosis (detecting indolent and clinically insignificant tumors that would not have been detected in the patient's lifetime without screening), and cumulative exposure to radiation (which can cause cancer). Screening also leads to unnecessary anxiety and invasive procedures, which carry their own complications. Accordingly, it should not be used in patients who do not meet these strict criteria, nor in patients with a health problem that substantially limits life expectancy or the ability or willingness to have curative therapy.

### 3 **Don't perform chest computed tomography (CT angiography) or ventilation-perfusion scanning to evaluate for possible pulmonary embolism in patients with a low clinical probability and negative results of a highly sensitive D-dimer assay.**

The majority of adults with chest pain and/or dyspnea do not have a pulmonary embolism (PE). There is strong evidence that in patients with low pre-test probability as determined by a clinical prediction rule (e.g., Wells score), a negative highly sensitive D-dimer assay effectively excludes clinically important PE. Furthermore, there are potential harms to performing CT pulmonary angiography (CTPA) or ventilation-perfusion (V/Q) scanning, including exposure to ionizing radiation, adverse events due to the administration of intravenous contrast, and identification of clinically insignificant PE leading to inappropriate anticoagulation. However, physicians should exercise clinical judgement in populations in whom this two-step algorithm has not been validated (e.g., pregnant patients).

### 4 **Don't treat adult cough with antibiotics even if it lasts more than 1 week, unless bacterial pneumonia is suspected (mean viral cough duration is 18 days).**

The majority of adults with a short duration of cough from an acute respiratory tract infection have a viral rather than a bacterial infection. Patients often underestimate the typical cough duration from an infectious illness, and when cough does not resolve within their expected time frame, may request antibiotics. The average duration of cough (not treated with antibiotics) is around 18 days, though patients only expect to cough for 5 to 7 days. Use of immediate or delayed antibiotics does not change clinical outcomes compared to no antibiotics in these situations. On the other hand, the harms of over-prescribing antibiotics include medication costs, adverse reactions, and the possibility of inducing bacterial resistance to antibiotics. Physicians should educate patients about the expected duration of cough and the consequences of inappropriate antibiotic use in acute respiratory tract infections.

**5 Don't initiate medications for asthma (e.g., inhalers, leukotriene receptor antagonists, or other) in patients  $\geq$  6 years old who have not had confirmation of reversible airflow limitation with spirometry, and in its absence, a positive methacholine or exercise challenge test, or sufficient peak expiratory flow variability.**

Although international guidelines uniformly recommend objective testing to establish an asthma diagnosis, this diagnosis is often made clinically and asthma medications are often initiated on that clinical basis. However, physical exam findings and symptoms such as cough, wheeze, and/or dyspnea can be caused by other conditions. As a result, up to one third of patients who have been diagnosed with asthma do not have evidence of asthma when objectively tested with pulmonary function tests. A false clinical diagnosis of asthma may delay diagnosis of the actual underlying condition, which may include serious cardiorespiratory conditions. Furthermore, patients with a false diagnosis of asthma who are started on asthma medications are unnecessarily exposed to both the side-effects and the costs of these medications. It should be noted, however, that this recommendation may not be applicable in patients who cannot reproducibly undergo objective testing for asthma (including children less than 6 years old), and in settings where such testing is not available.

**6 Don't use antibiotics for acute asthma exacerbations without clear signs of bacterial infection.**

Asthma exacerbations are characterized by decreased expiratory airflow as well as increased shortness of breath, cough, wheezing, chest tightness, or a combination of these symptoms. When such an attack is precipitated by an infection, it is much more likely to be viral than bacterial. The role of bacterial infection is often overestimated; however antibiotics should be reserved for relatively rare cases in which there is strong evidence of a bacterial infection, such as pneumonia or bacterial sinusitis. Potential harms of unnecessary antibiotic treatment include medication costs, side-effects (including a risk of allergy), and emergence of bacterial resistance.

**7 Don't delay conversations about wishes and goals with patients who have serious or progressive chronic respiratory illness, such as COPD, IPF, PH, or CF. Unnecessary and potentially harmful treatments can be avoided by having discussions and documenting these conversations.**

Supporting patients with serious or progressive respiratory illness to identify and document their values and treatment wishes is an important, but often neglected, intervention. While these patients often experience complex disease trajectories that make accurate prognostication challenging, these discussions can ensure future care is aligned with patients' preferences.

## How the list was created

The Choosing Wisely Canada top six list in respiratory medicine was developed by the Canadian Thoracic Society (CTS) through an iterative consultation process with CTS content experts and its members. A list of candidate recommendations was developed through: 1) consultation with the CTS Choosing Wisely Core Task Force (5 members), all CTS guideline writers, and the CTS Executive Committee; 2) retrieving respiratory-related choosing wisely recommendations in existing US and Canadian lists; and 3) selecting all Canadian Medical Association (CMA) POEMs™ (Patient-Oriented Evidence that Matters) between 2012-2015 that were considered to “help to avoid unnecessary or inappropriate treatment, diagnostic procedures, preventative interventions or a referral” by ≥ 10% of readers [in the Information Assessment Method (IAM) rating tool]. The CTS Choosing Wisely Task Force (comprised of the CTS Choosing Wisely Core Task Force and the CTS Canadian Respiratory Guidelines Committee; 19 members) then selected and prioritized 20 of these recommendations based on pre-established criteria, through an electronic Delphi process. These 20 recommendations were then sent to the entire CTS membership for selection and prioritization of the top 10 recommendations, along with a solicitation for new ideas. A second electronic Delphi process with the CTS Choosing Wisely Task Force narrowed this list to a final top 10. The CTS Choosing Wisely Core Task Force then performed a narrative literature review for each of these recommendations, focusing on similar prior Choosing Wisely recommendations, guideline recommendations, systematic reviews, and individual studies. The results of this review were presented to the CTS Choosing Wisely Task Force in a 3rd electronic Delphi process, in which they were asked to select and prioritize the top 5 recommendations. Given that scores between the 5th and 6th rated recommendations were close, 6 recommendations were adopted. These recommendations were approved by the CTS Executive Committee and will be broadly disseminated to our membership, other professional groups, and the general public.

## Sources

- 1 Global Initiative for Chronic Obstructive Lung Disease (GOLD). [GOLD 2019 Global Strategy for the Diagnosis, Management and Prevention of COPD](#) [Internet]. 2019. Qaseem A, et al. Diagnosis and management of stable chronic obstructive pulmonary disease: a clinical practice guideline update from the American College of Physicians, American College of Chest Physicians, American Thoracic Society, and European Respiratory Society. *Ann Intern Med.* 2011 Aug 2;155(3):179-91. PMID: 21810710.

United States of America Department of Veterans Affairs and the Department of Defense. [VA/DoD Clinical Practice Guideline for the Management of Chronic Obstructive Pulmonary Disease](#) [Internet]. 2014 Dec [cited 2017 May 5].
- 2 Canadian Task Force on Preventive Health Care, et al. Recommendations on screening for lung cancer. *CMAJ.* 2016 Apr 5;188(6):425-32. PMID: 26952527.

Moyer VA, et al. Screening for lung cancer: U.S. Preventive Services Task Force recommendation statement. *Ann Intern Med.* 2014 Mar 4;160(5):330-8. PMID: 24378917.

National Lung Screening Trial Research Team, et al. Reduced lung-cancer mortality with low-dose computed tomographic screening. *N Engl J Med.* 2011 Aug 4;365(5):395-409. PMID: 21714641.

O'Dowd EL, Baldwin DRBach PB, et al. Lung cancer screening-low dose CT for lung cancer screening: recent trial results and next steps. *Br J Radiol.* 2018 Oct;91(1090):20170460. PMID: 28749712.

Patz EF Jr, et al. Overdiagnosis in low-dose computed tomography screening for lung cancer. *JAMA Intern Med.* 2014 Feb 1;174(2):269-74. PMID: 24322569.
- 3 Borohovitz A, Weinberg MD, Weinberg I. Pulmonary embolism: Care standards in 2018. *Prog Cardiovasc Dis.* 2018 Mar - Apr;60(6):613-621. PMID: 29291427.

Crawford F, et al. D-dimer test for excluding the diagnosis of pulmonary embolism. *Cochrane Database Syst Rev.* 2016 Aug 5;(8):CD010864. PMID: 27494075.

Fesmire FM, et al. Critical issues in the evaluation and management of adult patients presenting to the emergency department with suspected pulmonary embolism. *Ann Emerg Med.* 2011 Jun;57(6):628-652.e75. PMID: 21621092.

Torbicki A, et al. Guidelines on the diagnosis and management of acute pulmonary embolism: the Task Force for the Diagnosis and Management of Acute Pulmonary Embolism of the European Society of Cardiology (ESC). *Eur Heart J.* 2008 Sep;29(18):2276-315. PMID: 18757870.

van der Hulle T, Cheung WY, Kooij S, et al. Simplified diagnostic management of suspected pulmonary embolism (the YEARS study): a prospective, multicentre, cohort study. *Lancet.* 2017; 390: 289– 97. PMID: 28549662.

Wiener RS, et al. Time trends in pulmonary embolism in the United States: evidence of overdiagnosis. *Arch Intern Med.* 2011 May 9;171(9):831-7. PMID: 21555660.
- 4 Ebell MH, et al. How long does a cough last? Comparing patients' expectations with data from a systematic review of the literature. *Ann Fam Med.* 2013 Jan-Feb;11(1):5-13. PMID: 23319500.

Little, P, Stuart, B, Smith, S, et al. Antibiotic prescription strategies and adverse outcome for uncomplicated lower respiratory tract infections: prospective cough complication cohort (3C) study. *BMJ* 2017; 357. PMID: 28533265.

McNulty CA, et al. Expectations for consultations and antibiotics for respiratory tract infection in primary care: the RTI clinical iceberg. *Br J Gen Pract.* 2013 Jul;63(612):e429-36. PMID: 23834879.

Smith SM, et al. Antibiotics for acute bronchitis. *Cochrane Database Syst Rev.* 2014 Mar 1;(3):CD000245. PMID: 24585130.

Snow V, et al. Principles of appropriate antibiotic use for treatment of acute bronchitis in adults. *Ann Intern Med.* 2001 Mar 20;134(6):518-20. PMID: 11255531.

Spurling GKP, Del Mar CB, Dooley L, et al. Delayed antibiotic prescriptions for respiratory infections. *Cochrane Database Syst Rev.* 2017;9. PMID: 28881007.
- 5 Aaron SD, et al. Reevaluation of Diagnosis in Adults With Physician-Diagnosed Asthma. *JAMA.* 2017 Jan 17;317(3):269-279. PMID: 28114551.

British Thoracic Society / Scottish Intercollegiate Guidelines Network. [BTS/SIGN British guideline on the management of asthma](#) [Internet]. 2017 Apr [cited 2017 May 5].

Global Initiative for Asthma. [2017 GINA Report, Global Strategy for Asthma Management and Prevention](#) [Internet]. 2017 [cited 2017 May 5].

Lougheed MD, et al. [Canadian Thoracic Society 2012 guideline update: diagnosis and management of asthma in preschoolers, children and adults](#) [Internet]. 2012 [cited 2017 May 29].
- 6 Aldington S, et al. Asthma exacerbations. 5: assessment and management of severe asthma in adults in hospital. *Thorax.* 2007 May;62(5):447-58. PMID: 17468458.

Bousquet J, et al. Uniform definition of asthma severity, control, and exacerbations: document presented for the World Health Organization Consultation on Severe Asthma. *J Allergy Clin Immunol.* 2010 Nov;126(5):926-38. PMID: 20926125.

British Thoracic Society / Scottish Intercollegiate Guidelines Network. [BTS/SIGN British guideline on the management of asthma](#) [Internet]. 2016 Sept.

Chung KF, et al. International ERS/ATS guidelines on definition, evaluation and treatment of severe asthma. *Eur Respir J.* 2014 Feb;43(2):343-73. PMID: 24337046.

Schatz M, et al. Joint task force report: supplemental recommendations for the management and follow-up of asthma exacerbations. Introduction. *J Allergy Clin Immunol.* 2009 Aug;124(2 Suppl):S1-4. PMID: 19647130.
- 7 Jabbarian LJ, Zwakman M, van der Heide A, Kars MC, Janssen DJA, van Delden JJ, Rietjens JAC, Korffage IJ. Advance care planning for patients with chronic respiratory diseases: a systematic review of preferences and practices. *Thorax.* 2018 Mar;73(3):222-230. PMID: 29109233.

Tavares N, Hunt KJ, Jarrett N, Wilkinson TMA. The preferences of patients with chronic obstructive pulmonary disease are to discuss their palliative care plans with family respiratory clinicians, but to delay conversations until their conditions deteriorates: a study guided by interpretative phenomenological analysis. *Pall Med.* 2020 Dec;34(10):1361-1373. PMID: 32720555.

---

### **About the Canadian Thoracic Society**

The Canadian Thoracic Society (CTS) is a proud partner of the Choosing Wisely Canada campaign. CTS is Canada's national specialty society for respirology bringing together over 1,000 members representing specialists, physicians and researchers as well as healthcare professionals from a variety of disciplines working in respiratory health.



---

### **About Choosing Wisely Canada**

Choosing Wisely Canada is the national voice for reducing unnecessary tests and treatments in health care. One of its important functions is to help clinicians and patients engage in conversations that lead to smart and effective care choices.

🌐 [ChoosingWiselyCanada.org](http://ChoosingWiselyCanada.org) | ✉ [info@ChoosingWiselyCanada.org](mailto:info@ChoosingWiselyCanada.org) | 🐦 [@ChooseWiselyCA](https://twitter.com/ChooseWiselyCA) | 📘 [/ChoosingWiselyCanada](https://www.facebook.com/ChoosingWiselyCanada)