

# Internal Medicine

## Fifteen Things Physicians and Patients Should Question

by  
Canadian Society of Internal Medicine  
Last updated: May 2024



### **1 Don't routinely obtain neuro-imaging studies (CT, MRI, or carotid dopplers) in the evaluation of simple syncope in patients with a normal neurological examination.**

Although an uncommon cause for syncope, providers must consider a neurological cause in every patient presenting with transient loss of consciousness. In the absence of signs or symptoms concerning for neurological causes of syncope (such as but not limited to focal neurological deficits), the utility of neuro-imaging studies are of limited benefit. Despite a lack of evidence for the diagnostic utility of neuroimaging in patients presenting with true syncope, providers continue to perform brain computed tomographic (CT) scans. Thus, inappropriate use of this diagnostic imaging modality carries high costs and subject patients to the risks of radiation exposure.

### **2 Don't place, or leave in place, urinary catheters without an acceptable indication (such as critical illness, obstruction, palliative care).**

Use of urinary catheters without an acceptable indication of use increases the likelihood of infection leading to greater morbidity and health care costs. Catheter-associated bacteriuria often leads to inappropriate antimicrobial use and secondary complications including emergence of antimicrobial-resistant organisms and infection with *Clostridium difficile*. A previous study showed that physicians are often unaware of urinary catheterization among their patients. Use of urinary catheters has found to be inappropriate in up to 50% of cases, with urinary incontinence listed as the most common reason for inappropriate and continued placement of urinary catheters. Clinical practice guidelines support the removal or avoidance of unnecessary urinary catheters in order to reduce the risk of catheter-associated urinary tract infections (CAUTIs).

### **3 Don't transfuse red blood cells for arbitrary hemoglobin or hematocrit thresholds in the absence of symptoms, active coronary disease, heart failure or stroke.**

Indications for blood transfusion depend on clinical assessment and are also guided by the etiology of the anemia. No single laboratory measurement or physiologic parameter can predict the need for blood transfusion. Transfusions are associated with increased morbidity and mortality in high-risk hospitalized inpatients. Adverse events range from mild to severe, including allergic reactions, acute hemolytic reactions, anaphylaxis, transfusion related acute lung injury, transfusion associated circulatory overload, and sepsis. Studies of transfusion strategies among multiple patient populations suggest that a restrictive approach is associated with improved outcomes.

### **4 In the inpatient setting, don't order repeated CBC and chemistry testing in the face of clinical and lab stability.**

Repetitive inpatient blood testing occurs frequently and is associated with adverse consequences for the hospitalized patient such as iatrogenic anemia, and pain. A Canadian study showed significant hemoglobin reductions as a result of phlebotomy. Given that anemia in hospital patients is associated with increased length of stay, readmission rates and transfusion requirements, reducing unnecessary testing may improve outcomes. Studies support the safe reduction of repetitive laboratory testing without negative effects on adverse events, readmission rates, critical care utilization or mortality. Laboratory reduction interventions have also reported significant cost savings.

### **5 Don't routinely perform preoperative testing (such as chest X-rays, echocardiograms, or cardiac stress tests) for patients undergoing low risk surgeries.**

Routine preoperative tests for low risk surgeries results in unnecessary delays, potential distress for patients and significant cost for the health care system. Numerous studies and guidelines outline lack of evidence for benefit in routine preoperative testing (e.g., chest X-ray, echocardiogram) in low risk surgical patients. Economic analyses suggest significant potential cost savings from implementation of guidelines.

### **6 Don't initiate therapy with opioids for patients with chronic non-cancer pain unless non-opioid pharmacotherapy and other non-pharmacological options have been optimized.**

Several non-opioid therapies (including both drug and non-drug alternatives) may achieve a similar magnitude of improvement in pain and function more safely without the potentially serious side effects of opioid therapy (e.g. harms related to dependence, addiction and overdose).

**7 Don't do a workup for clotting disorders (hypercoagulability testing) for patients who develop first episode of DVT in the setting of a known precipitant.**

Thrombophilia testing is costly and can result in harm to patients if the duration of anticoagulation is inappropriately prolonged or if patients are incorrectly labeled as thrombophilic. Thrombophilia testing does not change the management of VTEs occurring in the setting of major transient VTE risk factors. When VTE occurs in the setting of pregnancy or hormonal therapy, or when there is a strong family history plus a major transient risk factor, the role of thrombophilia testing is complex and patients and clinicians are advised to seek guidance from an expert in VTE.

**8 Don't undertake prolonged life-sustaining treatments or escalate to intensive care without establishing prognosis, preferences and goals of care.**

Patients and their families often prefer to avoid invasive or overly aggressive life-sustaining measures at the end of life. However, many dying patients receive non-beneficial life-sustaining treatments, in part due to clinicians' failures to elicit patients' preferences, provide appropriate recommendations, and participate in shared decision-making.

**9 Don't order or refer for percutaneous coronary intervention in patients with stable coronary artery disease that do not have high risk features, and are asymptomatic or have not been on optimal medical therapy.**

Performing percutaneous coronary intervention in the absence of a clear indication is costly and exposes patients to procedural risks, radiation, contrast exposure, and possible stent-related complications. Patients whose symptoms are controlled on optimal medical therapy, and who do not have any high-risk findings\* on non-invasive testing (e.g., exercise treadmill test, myocardial perfusion imaging, stress echocardiography, or coronary computed tomographic angiography), should not be referred for percutaneous coronary intervention.

\*This [table](#) outlines high-risk features of non-invasive test results associated with >3% annual rate of death or MI

**10 Don't order continuous telemetry monitoring outside of ICU without using a protocol that governs discontinuation.**

Published guidelines provide clear indications for the use of telemetric monitoring which are contingent upon frequency, severity, duration and conditions under which the symptoms occur. Inappropriate use of telemetric monitoring is likely to increase the cost of care and restrict patient mobility. False positive alarms increase workload and interruptions for front-line clinicians and can create unnecessary anxiety for patients.

**11 Don't initiate long-term maintenance treatments (e.g. bronchodilators, inhaled corticosteroids, leukotriene receptor antagonists, or other) in adult patients with suspected COPD/asthma without confirming a diagnosis with objective testing such as spirometry/methacholine challenge.**

Many individuals are erroneously assigned a diagnosis of COPD/asthma without objective diagnostic testing. It is recommended that confirmatory testing be used to make the diagnosis of airflow obstruction in patients with respiratory symptoms. Starting long-term maintenance treatments without first objectively diagnosing COPD/asthma results in unnecessary treatment in those patients who do not actually have the disease. This exposes these patients to both the side-effects and the cost of these medications, and might delay the appropriate diagnosis.

**12 Don't prescribe intravenous (IV) antibiotics for patients who can safely be treated with an oral option, given that IV antibiotics have a higher carbon footprint.**

There is emerging evidence that conditions traditionally treated with prolonged courses of IV antibiotics, such as osteomyelitis or infective endocarditis, can safely be treated with PO antibiotics after a lead in period of IV therapy. Studies from the UK estimated that oral antibiotics have a carbon footprint up to 90% lower than the IV equivalent, depending on the antibiotic - a one-week course of oral ciprofloxacin is associated with 1.4kg CO<sub>2</sub>e (6.8km by car) of emissions versus 100.1kg CO<sub>2</sub>e (485.9km by car) for intravenous ciprofloxacin. The same group ran an early oral antimicrobial step-down project which saved 300,000 British pounds (or ~\$450,000 CAD) annually. Among patients on IV antibiotics, early transition to oral antibiotics has the additional co-benefits of reducing hospital length of stay, length of treatment, nursing care needs, in addition to lowering carbon footprint.

a) All kgCO<sub>2</sub>e to km conversions in these recommendations are based on a carbon footprint conversion factor of 206gCO<sub>2</sub>e/km for the average Canadian vehicle in 2017. From: International Energy Agency. Fuel Economy in Major Car Markets: Technology and Policy Drivers 2005-2017. March 2019.

**13 Don't prescribe heparin or low molecular weight heparin in situations where oral options are effective, preferred by the patient, and felt to be safe by the prescriber.**

Specialty societies support the use of oral anticoagulation as initial therapy for many disease states. Evidence also suggests that patients prefer oral anticoagulants over subcutaneous formulations (most commonly, heparinoids) as the oral route is considered easier, less painful and less expensive. Heparinoids are also a highly carbon-intensive medication. The only Health Canada approved source of heparin is porcine mucosa; heparin cannot be synthesized artificially. Approximately 1.1 billion pigs are raised each year to meet the worldwide demand for heparin. It is estimated that 1 kg of intestinal mucosa will produce 160–260 mg of crude heparin. The carbon footprint of raising a heparin swine to maturity is 6.1kg CO<sub>2</sub>e (30km by car) per kg of pig which amounts to 668 million tonnes CO<sub>2</sub>e annually (over 3 trillion km by car). Heparin swine are raised in tightly regulated and highly specific conditions with regards to antibiotic and growth hormone usage and cannot be used for dietary pork consumption. The environmental impact associated with processing, manufacturing, transport, and packaging is unpublished but add to heparin's substantive carbon footprint.

**14 Don't prescribe greenhouse gas-intensive metered-dose inhalers (MDIs) where a lower carbon alternative with comparable efficacy is available (e.g. dried-powder inhaler, soft-mist inhaler, or low-propellant MDI) in situations where technique is adequate and where patient preference has been considered.**

MDIs contain hydrofluoroalkane, a potent greenhouse gas that expels the active ingredient from the inhaler device. Based on the type and volume of propellant used, an MDI produces between 9.7kg CO<sub>2</sub>e (47.1km by car) and 34.8kg CO<sub>2</sub>e (168.9 km by car). Dried powder inhalers (DPIs) and soft-mist inhalers (SMIs) lack propellant and are significantly less carbon intensive (<1kg CO<sub>2</sub>e or 5 km by car). Patients consider the environmental impact of their device to be an important consideration when choosing an inhaler device.

**15 Don't recommend/order investigations or interventions before discussing patients' expected trajectory of health and life expectancy, and exploring their preferences, values and goals of care.**

Interventions that do not align with patient goals produce needless environmental impacts. Ensuring that care setting aligns with a patient's goals of care can have an important impact on the carbon footprint of a hospital admission. An acute care unit (ward bed) generates 5.5kg of solid waste and 45kg CO<sub>2</sub>e (218 km by car) per hospital day, as compared to 7.1kg of solid waste and 138 kg CO<sub>2</sub>e (670 km by car) in an intensive care unit. By integrating routine cognitive and frailty screening for older patients (a low carbon, high value clinical intervention), internists can unmask dementia and discuss the risks of frailty with patients and caregivers which leads to more patients choosing conservative care better aligned with their prognosis and goals, and stands to reduce acute care days.

## How the list was created

The Canadian Society of Internal Medicine (CSIM) established its Choosing Wisely Canada Top 5 recommendations by convening a Committee of 20 members that represent a diverse group of general internists from across Canada, reflecting a broad range of geographical regions, practice settings, institution types and experience. The Committee chose to adopt pre-existing recommendations that have already undergone rigorous evidence review from the Five Things Physicians and Patients Should Question (© 2013 American College of Physicians; © 2012 Society of Hospital Medicine; © 2013 Society of General Internal Medicine), the American College of Physicians High Value Cost Conscious Care recommendations, and the “do not do” recommendations from the National Institute for Health and Care Excellence (NICE) in the United Kingdom. In addition, members brought forward recommendations based on experience and relevance to practice. Each Committee member was invited to anonymously rank all recommendations online. The Committee discussed the highest ranked recommendations and reached a consensus on a list of Top 5 items. The list of recommendations was presented at an open forum CSIM meeting and to the Executive Council at the 2013 CSIM Annual Meeting in Toronto, Canada. CSIM members who attended the Council meeting and the Choosing Wisely Update session were also given an opportunity to provide feedback. Minor refinements to the list were made and subsequently approved by the Committee. In 2018, recommendations 6-11 were added, following the same process. The CSIM Executive Council provides full endorsement and support for the final list of CSIM Choosing Wisely Canada recommendations.

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### **About the Canadian Society of Internal Medicine**

The CSIM is a national medical society of physicians who are specialists in the broad discipline of general internal medicine. CSIM members provide expert medical care for adults with complex multi-system diseases at community and academic hospitals across Canada. CSIM members are teachers of medical students and residents and are leaders in health research and quality improvement. The CSIM has over 1,100 members and associates.



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### **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.

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