



## Five Things Residents and Patients Should Question

### 1 Don't order investigations that will not change your patient's management plan.

Investigations may not change your patient's management plan for several reasons. In some cases, the patient's pre-test probability for a condition is low, and further testing is not necessary (e.g., screening for breast cancer in younger women with low risk of breast cancer). Another example is unnecessary preoperative testing before a low-risk surgical procedure where the risk of complications is low. On the other hand, high-risk patients may warrant treatment irrespective of the test result; thus, testing in these patients would not influence the ultimate decision to treat (e.g., thrombophilia testing in patients with an unprovoked pulmonary embolism at high risk for recurrence is not helpful, since these patients should receive indefinite anticoagulation). Where possible, residents can refer to evidence-based clinical decision rules to guide appropriate testing or treatment – examples include the Well's criteria or pulmonary embolism rule-out criteria (PERC) for pulmonary embolism, the Canadian CT Head Rule for CT scan of the head in a trauma patient, or the Centor criteria for likelihood of bacterial infection in adult patients with a sore throat.

### 2 Don't order repeat laboratory investigations on inpatients who are clinically stable.

Daily laboratory investigations can persist despite clinical stability for a variety of reasons (e.g., daily order without a stop date, not reassessing whether investigations are still needed). Observational studies suggest that resident physicians order routine daily CBC (complete blood count) and electrolyte panels more frequently than attending physicians. Daily phlebotomy contributes to patient discomfort and iatrogenic anemia. Studies support the safe reduction of repetitive laboratory investigations when patients are clinically stable without a negative impact on patient outcomes, including readmission rates, critical care utilization, adverse events, or mortality. Laboratory investigations should be ordered with a specific purpose which directly links to a specific management plan for patients.

### 3 Don't order intravenous (IV) when an oral (PO) option is appropriate and tolerated.

Patients are often ordered intravenous (IV) medications when oral (PO) options are available, appropriate, and equally bioavailable. Common examples include antibiotics that are highly orally bioavailable (e.g., fluoroquinolones), oral potassium replacement (which is more effective than IV replacement), proton pump inhibitors (PPI) including in the setting of many cases of acute gastrointestinal bleeding, and oral vitamin B12 replacement (as opposed to intramuscular injections, including in the context of pernicious anemia). Peripheral catheters increase the risk of complications, including extravasation, infections, and thrombophlebitis. Furthermore, IV medication administration is often significantly costlier, decreases patient mobility, and increases length of hospital stay and pharmacist and nursing workload.

### 4 Don't order non-urgent investigations or procedures that will delay discharge of hospital inpatients.

Discharges are commonly delayed for investigations that will not change acute management. Examples include biopsies, imaging to further investigate incidental findings, assessment by a specialist that is non-urgent, waiting for bloodwork results as part of a non-urgent diagnostic work-up, or echocardiography for patients with mild heart failure. Delayed discharges contribute to hospital over-crowding and negatively impact care efficiency. Crucially, longer lengths of stay is a risk factor for nosocomial infections, venous thromboembolism, pressure injuries, immobility, malnutrition, and deconditioning. Consider outpatient investigations when possible, if good follow-up can be assured.

### 5 Don't order invasive studies if less invasive options are available and as effective.

When considering diagnosis or screening investigations, consider all available tests. It is prudent to consider the least invasive option that will have similar sensitivity and specificity to guide clinical decision making to minimize the potential for harm to the patient. For example, when diagnosing acute appendicitis in children, ultrasound should be considered before computed tomography (CT) scanning. Not only is ultrasound radiation- and contrast-free, but it has been shown to be equivalent to CT scanning in the diagnosis and management of acute appendicitis across several clinically-relevant endpoints, including time to antibiotic delivery, time to appendectomy, negative appendectomy rate, perforation rate, or length of stay. Another example is conducting a non-invasive urea breath test rather than invasive endoscopy to prove *H. pylori* eradication. The sensitivity and specificity of the urea breath test are superior compared to other diagnostic tests and the risk of patient harm is minimal compared to endoscopy.

## How the list was created

Resident Doctors of Canada (RDoC) established its Choosing Wisely Canada Top 5 recommendations by forming a resident taskforce comprised of 5 residents representing geographic and specialty diversity. The taskforce established six principles of development: 1) arise frequently in residency training, 2) have relevance to residents, 3) play a role in shaping future behaviours, 4) be one that residents may feasibly address during their training, 5) focus on residents' use of tests, treatments, or procedures, and 6) contribute to building a more economically sustainable, cost-conscious healthcare system. The task force generated a list of 20 candidate recommendations along with supporting evidence that were reviewed by the RDoC Practice Committee, and then narrowed the list to 12 recommendations to move forward for national consultation. The candidate recommendations were distributed to residents across Canada through an online questionnaire. Residents were asked to rank the recommendations keeping in mind the above principles for development. Over 750 residents from all provincial housestaff organizations provided feedback and weighted aggregate scores for each recommendation were calculated. The taskforce discussed the results and used the information to inform the final list of five recommendations. The RDoC Board approved and officially endorses the list of resident recommendations.

## Sources

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### About Choosing Wisely Canada

Choosing Wisely Canada is a campaign to help clinicians and patients engage in conversations about unnecessary tests, treatments and procedures, and make smart and effective choices to ensure high-quality care.

For more information on Choosing Wisely Canada or to see other lists of Things Clinicians and Patients Should Question, visit [www.choosingwiselycanada.org](http://www.choosingwiselycanada.org). Join the conversation on Twitter @ChooseWiselyCA.

### About Resident Doctors of Canada

Resident Doctors of Canada (RDoC) is a proud partner of the Choosing Wisely Canada campaign. RDoc represents over 9,000 resident doctors across Canada. Established in 1972, it is a not-for-profit organization providing a unified, national voice for our members. RDoC collaborates with other national health organizations to foster excellence in training, wellness, and patient care.