# POEMs

## *Patient-Oriented Evidence That Matters*

## Screening Colonoscopies Are Overused

### Clinical Question

What proportion of screening colonoscopies for cancer are not performed according to guideline parameters?

### Bottom Line

About 17% to 25.7% of screening colonoscopies are performed too frequently or in patients who are too young or too old. In the United States, this rate translates into approximately 1 million colonoscopies performed each year outside of the parameters set by guidelines. Screening via colonoscopy for colon cancer has never been shown to reduce overall mortality. (Level of Evidence = 1a–)

### Synopsis

The researchers searched two databases for English-language studies of screening colonoscopies for average-risk patients, identifying six studies with 242,756 screening colonoscopies. The studies defined colonoscopy overuse according to criteria from the U.S. Preventive Services Task Force and the U.S. Multi-Society Task Force on Colorectal Cancer; that is, colonoscopy conducted in patients younger or older than the age range specified in national guidelines or at shorter intervals than recommended. The researchers followed PRISMA guidelines: two researchers selected articles for inclusion and two researchers independently abstracted data. These were all database studies. The studies reported one in four to one in six (17% to 25.7%) colonoscopies to be out of compliance with national guidelines.

This POEM aligns with the Canadian Association of General Surgeons' Choosing Wisely Canada recommendation: avoid colorectal cancer screening in asymptomatic patients with a life expectancy of less than 10 years and with no personal or family history of colorectal neoplasia.

**Study design:** Systematic review

**Funding source:** Foundation

**Setting:** Various (meta-analysis)

**Reference:** *Fraiman J, Brownlee S, Stoto MA, et al. An estimate of the US rate of overuse of screening colonoscopy: a systematic review.* J Gen Intern Med. *2022;1-9. Published online February 25, 2022.*

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## Large Increases in the Risk of Cardiovascular Events Following COVID-19 Infection That Required Hospitalization

### Clinical Question

Is the risk of cardiovascular events increased following COVID-19 infection?

### Bottom Line

In this analysis, researchers found a large increase in cardiovascular events in the 12 months following COVID-19 infection, with the greatest risk in those with more severe disease. Although the risk for cardiovascular events is lower in patients with COVID-19 who were not hospitalized, there is a large impact at a population level. There are about 26,000 additional cardiovascular events, including 13,000 major events, per 1 million people with COVID-19 who were not hospitalized. (Level of Evidence = 2b)

### Synopsis

This was a retrospective cohort study that identified 5,637,647 veterans who were enrolled in the U.S. Veterans Health Administration (VHA) system in 2019 who did not have a documented positive test result for the SARS-CoV-2 virus, as well as 153,760 veterans who were alive 30 days after a positive test result for the SARS-CoV-2 virus. The distribution of entry dates was adjusted to maintain the comparability of groups. The authors also identified a historic cohort of VHA patients cared for during the two years before the pandemic. The mean age of the cohorts was 61 to 63 years, approximately 20% were Black, and 90% were men. The authors balanced COVID-19 positive and COVID-19 negative groups using propensity scores and did an adjusted analysis. They used a positive outcome control (fatigue) to confirm that they found an association that they expected,

and several negative outcome controls (e.g., diagnosis of melanoma in situ, hypertrichosis, lymphoma) to confirm that they did not find an unexpected association. Results for the historic and contemporary controls were similar. The positive and negative outcome controls results were as expected. The likelihood of a patient with COVID-19 experiencing every cardiovascular condition was significantly increased, with hazard ratios for most between 1.5 and 2.5. The risk was increased much more for patients hospitalized with COVID-19, especially those who had been cared for in the intensive care unit (ICU). There would be approximately five additional diagnoses of heart failure in 1,000 nonhospitalized patients, 45 in 1,000 hospitalized patients, and 78 in 1,000 ICU patients. For cerebrovascular disease, the corresponding excess burdens per 1,000 patients are three events for nonhospitalized, 20 for hospitalized, and 31 for ICU patients.

Hazard ratios were somewhat higher among people without preexisting cardiovascular disease, and were consistent by age, race, and sex. The excess burdens of the composite of all-cause mortality, myocardial infarction, and stroke were 13 for nonhospitalized, 51 for hospitalized, and 138 for ICU patients per 1,000 people. For any cardiovascular event, excess burdens were 26 for nonhospitalized, 161 for hospitalized, and 312 for ICU patients.

**Study design:** Cohort (retrospective)

**Funding source:** Government

**Setting:** Population-based

**Reference:** *Xie Y, Xu E, Bowe B, et al. Long-term cardiovascular outcomes of COVID-19.* Nat Med. *2022; 28(3):583-590.*

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## Updated American College of Chest Physicians Guideline on Antithrombotic Therapy for Venous Thromboembolism

### Clinical Question

What are the latest recommendations for antithrombotic therapy for patients with venous thromboembolism (VTE)?

### Bottom Line

The guideline covers a lot of ground. Key updates include a clear preference for direct oral anticoagulants, including in patients with cancer, and low-dose apixaban (Eliquis) or rivaroxaban (Xarelto) for extended-phase anticoagulation in patients with unprovoked VTE. There is greater leeway for observation only of selected patients with subsegmental pulmonary embolism (PE) or isolated distal lower extremity deep venous thrombosis (DVT), and outpatient treatment of selected patients with PE. (Level of Evidence = 1a)

### Synopsis

The latest update to the American College of Chest Physicians guideline regarding antithrombotic therapy for VTE adds four new recommendations and updates eight others. The authors identified an initiation phase when anticoagulants are first given, a treatment phase of three months, and an extended phase for selected patients beyond three months. For patients with acute isolated distal DVT, the guidelines recommend two weeks of serial imaging, with anticoagulation only if the DVT extends or the patient has severe symptoms or risk factors for extension. For patients with subsegmental PE, no proximal DVT in the legs, and who are at low risk for recurrent VTE, clinical observation without anticoagulation is recommended. Outpatient therapy for PE is recommended if patients are clinically stable; there is no recent bleeding, thrombocytopenia, or severe liver or kidney disease; and they feel well enough to be treated at home and are likely to be adherent. For patients with asymptomatic PE incidentally diagnosed during computed tomography of the chest, anticoagulation is recommended because studies have shown a similar prognosis to symptomatic PE.

A direct oral anticoagulant (e.g., apixaban, dabigatran [Pradaxa], edoxaban [Savaysa], rivaroxaban) is recommended as first-line therapy. An exception should be made for patients with antiphospholipid syndrome, for whom warfarin (Coumadin) is recommended during the treatment phase. For patients with cancer, apixaban, edoxaban, and rivaroxaban are recommended over low-molecular-weight heparin for treatment of VTE. The authors make a weak recommendation for 45 days of fondaparinux (Arixtra), 2.5 mg daily, or rivaroxaban, 10 mg daily, for patients with superficial venous thrombosis of the lower leg. Extended-phase low-dose anticoagulation with apixaban, 2.5 mg twice daily, or rivaroxaban, 10 mg once daily, is recommended for all patients with unprovoked VTE. This has only

been studied for two to four years, so extending anticoagulation beyond that is of uncertain benefit. Aspirin is recommended when patients discontinue extended-phase anticoagulation.

For patients with PE, thrombolytics are recommended only for patients with hypotension initially or who deteriorate clinically, assuming they do not have high bleeding risk. For those with a high bleeding risk or for those whom thrombolysis was ineffective, catheter-assisted thrombus removal is recommended. Inferior vena cava filters are recommended only for patients with DVT who have a contraindication to anticoagulation. For patients with cerebral vein or venous sinus thrombosis, anticoagulation is recommended. Compression stockings are not recommended for patients with acute DVT.

**Study design:** Practice guideline

**Funding source:** Foundation

**Setting:** Various

**Reference:** *Stevens SM, Woller SC, Kreuziger LB, et al. Executive summary: antithrombotic therapy for VTE disease: second update of the CHEST guideline and expert panel report.* Chest. *2021;160(6):2247-2259.*

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## High-Efficiency Air Cleaners Decrease Exacerbations and the Use of Rescue Medication in Former Smokers With COPD

### Clinical Question

Do high-efficiency air cleaners prevent chronic obstructive pulmonary disease (COPD) exacerbations and improve quality of life in former smokers with moderate to severe COPD?

### Bottom Line

In this small, well-designed study, the use of an active air cleaner for six months was effective in decreasing the rates of moderate exacerbations and rescue medication use in former smokers with moderate to severe COPD. (Level of Evidence = 1b–)

### Synopsis

The researchers enrolled 116 former smokers with moderate to severe COPD (forced expiratory volume in one second/forced vital capacity [$FEV_1$/FVC] ratio 70% or less, $FEV_1$ less than 80% predicted) who resided in homes where the indoor air particulate matter exceeded 10 mcg per $m^3$. The authors randomized the participants (unknown if the allocation was concealed) to receive two active air cleaners or two sham air cleaners. The active cleaners had high-efficiency particulate air (HEPA) and carbon filters; the sham cleaners had these filters removed, so the air movement and noises were identical. The researchers evaluated the participants sequentially for six months. Using intention-to-treat, after three months, the researchers saw no effects. After six months, although there was no difference in overall health-related quality of life, the participants using the active air cleaners had statistically significant improvement in symptom scores (clinical significance unknown). Although the average number of moderate exacerbations (i.e., needing systemic corticosteroids, antibiotics, or urgent health care visits) was 0.4 in the active air cleaner group compared with 1.25 in the sham group (relative risk = 0.32; 95% CI, 0.12 to 0.91), there was no difference in the rate of exacerbations requiring emergency department visits or hospitalizations. The average frequency of the use of rescue medication was lower in the active air cleaner group than in the sham group (1.88 vs. 3.51). The participants with the lowest $FEV_1$ at baseline and those spending more time indoors with the active air cleaner on more than 80% of the time had the greatest improvements.

**Study design:** Randomized controlled trial (double-blinded)

**Funding source:** Government

**Allocation:** Uncertain

**Setting:** Outpatient (any)

**Reference:** *Hansel NN, Putcha N, Woo H, et al. Randomized clinical trial of air cleaners to improve indoor air quality and chronic obstructive pulmonary disease health: results of the CLEAN AIR study.* Am J Respir Crit Care Med. *2022;205(4):421-430.*

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**Editor's Note:** Dr. Ebell is deputy editor for evidence-based medicine for *AFP* and cofounder and editor-in-chief of Essential Evidence Plus, published by Wiley-Blackwell. Dr. Shaughnessy is an assistant medical editor for *AFP*. ■