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## Screening Echocardiography Not Beneficial

### Clinical Question

Does screening for heart disease with echocardiography decrease mortality, myocardial infarction risk, or stroke risk?

### Bottom Line

Population-based screening for heart disease or valve disease with echocardiography will identify cardiac pathology in patients but does not decrease mortality, myocardial infarction risk, or stroke risk. (Level of Evidence = 1b)

### Synopsis

In 1994 and 1995, researchers enrolled 6,861 middle-aged (average age = 60 years) inhabitants of a single city (Tromsø, Norway). The participants were randomly assigned, concealed allocation unknown, to a one-time screening for heart disease using two-dimensional echocardiography or to no screening. Participants in both groups were white and evenly split by sex. Approximately 12% of patients self-reported coronary heart disease, 59% had hypertension (although only 13.5% were treated with medication), 32% smoked, and only 4% had diabetes mellitus. Screening identified 7.6% of patients with cardiac or valvular conditions, who were then treated. Over 15 years of follow-up, 26.9% of the participants in the screening group died, compared with 27.6% in the control group (not significant). Similarly, there was no effect of screening on rates of sudden death, mortality from heart disease,

or incidence of fatal or nonfatal myocardial infarction and stroke.

**Study design:** Randomized controlled trial (nonblinded)

**Funding source:** Unknown/not stated

**Allocation:** Uncertain

**Setting:** Population-based

**Reference:** Lindekleiv H, Løchen ML, Mathiesen EB, Njølstad I, Wilsgaard T, Schirmer H. Echocardiographic screening of the general population and long-term survival: a randomized clinical study. *JAMA Intern Med.* 2013;173(17):1592-1598.

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## Influenza Vaccine Reduces Risk of Adverse Cardiovascular Events in High-Risk Patients

### Clinical Question

Does the influenza vaccine lower the risk of major adverse cardiovascular events in adults with coronary disease?

### Bottom Line

This meta-analysis found that the influenza vaccine is associated with a significantly lower risk of major adverse cardiovascular events in adults with coronary disease. The benefit of influenza vaccination is strongest in adults with a history of recent acute coronary syndrome within the previous six months (number needed to treat [NNT] = 8). (Level of Evidence = 1a)

### Synopsis

These investigators searched multiple sources, including Medline, Embase, the Cochrane Register, reference lists of eligible articles, clinicaltrials.gov, and conference abstracts without language restrictions for all published and unpublished randomized clinical trials comparing influenza vaccination with placebo or standard care. Two investigators independently reviewed potential studies for inclusion and methodologic

quality using standard scoring tools. Disagreements were resolved by consensus. Six randomized controlled trials met inclusion criteria for the final meta-analysis. These trials (N = 6,735) compared influenza vaccine with placebo or control for a mean duration of 7.9 months. The primary outcome measured was a composite of major adverse cardiovascular events, including cardiovascular death or hospitalization for myocardial infarction, unstable angina, stroke, heart failure, or urgent coronary bypass surgery.

In the analysis of the six included trials, significantly fewer vaccinated patients developed a major adverse cardiovascular event compared with those in the placebo or control groups (2.9% vs. 4.7%, respectively; NNT = 58; 95% confidence interval, 38 to 124). The benefit of vaccination was strongest in the subset of patients with a history of recent acute coronary syndrome within the previous six months (10.25% with vaccine vs. 23.1% with placebo or control; NNT = 8; 95% confidence interval, 6 to 13). There was, however, no significant difference in all-cause mortality between the vaccinated and placebo or control patient groups. Formal statistical analyses found no evidence of significant heterogeneity among the trials or publication bias.

**Study design:** Meta-analysis (randomized controlled trials)

**Funding source:** Government

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

**Reference:** Udell JA, Zawi R, Bhatt DL, et al. Association between influenza vaccination and cardiovascular outcomes in high-risk patients: a meta-analysis. *JAMA*. 2013;310(16):1711-1720.

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## Amoxicillin/Clavulanate or Ibuprofen No Better Than Placebo for Acute Bronchitis

### Clinical Question

In adults with discolored sputum and acute bronchitis, is treatment with amoxicillin/clavulanate (Augmentin) or ibuprofen more effective than placebo in decreasing the number of days with frequent cough?

### Bottom Line

Treating acute bronchitis with amoxicillin/clavulanate or the nonsteroidal anti-inflammatory drug ibuprofen is no more effective than placebo in decreasing symptoms in general or duration of frequent cough. Treatment does, however, produce adverse effects in one in eight patients. To quote Osler: "The desire to take medicine is perhaps the greatest feature which distinguishes man from animals." In that case, prescribing ibuprofen rather than an antibiotic may be the better way to allow patients to take medicine while their cough resolves. (Level of Evidence = 1b)

### Synopsis

The investigators enrolled 416 adults presenting for care at one of nine primary care centers in Spain. Patients were eligible for inclusion if they had symptoms of acute bronchitis for less than one week. All patients had cough as the predominant symptom, with discolored sputum and at least one other symptom of lower respiratory tract infection (i.e., dyspnea, wheezing, or chest discomfort or pain). A total of 38% were current smokers. Patients were excluded if they had radiologic evidence of pneumonia or signs of severe infection (e.g., confusion, rapid respiratory rate, rapid pulse). The patients were randomly assigned, using concealed allocation, to receive ibuprofen (600 mg), amoxicillin/clavulanate (500 mg/125 mg), or placebo three times daily for 10 days.

The mean time to complete resolution of cough was 14.6 days, which is slightly shorter than the average duration of 18 days reported in other studies (Ebell MH, Lundgren J, Youngpairoj S. *Ann Fam Med*. 2013;11(1):5-13). Using intention-to-treat analysis, the median number of days of frequent cough, recorded by patient diary, was approximately 10 days in each group. The results were similar when analyzing only those patients who adhered to the complete treatment. Symptom scores during treatment did not differ among the groups. Adverse effects were more common with antibiotic treatment (12%) as compared with ibuprofen or placebo (5% and 3%, respectively;  $P < .01$ ).

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

**Funding source:** Government

**Allocation:** Concealed

**Setting:** Outpatient (primary care)

**Reference:** Llor C, Moragas A, Bayona C, et al. Efficacy of anti-inflammatory or antibiotic treatment in patients with non-complicated acute bronchitis and discoloured sputum: randomised placebo controlled trial. *BMJ*. 2013;347:f5762.

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## Colchicine Effective for First Episode of Acute Pericarditis

### Clinical Question

Does the addition of colchicine improve outcomes in the treatment of an initial episode of acute pericarditis?

### Bottom Line

When used in addition to conventional anti-inflammatory therapy, colchicine decreases the rate of incessant or recurrent pericarditis. You would need to treat four patients with colchicine to prevent one such episode. (Level of Evidence = 1b)

### Synopsis

Colchicine has been previously shown to be effective in the prevention of recurrent pericarditis (Daily POEM; December 16, 2011). In this study, patients with a first episode of acute pericarditis were randomized to receive colchicine (0.5 to 1 mg daily for three months; n = 120) or matching placebo (n = 120). All patients also received conventional treatment for acute pericarditis, aspirin (800 mg) or ibuprofen (600 mg) every eight hours for seven to 10 days followed by a taper, or (for

those with contraindications to aspirin or ibuprofen) glucocorticoid therapy for two weeks followed by a taper. Baseline characteristics in the two groups were similar: mean age was 52 years, 60% were men, and the most common cause of pericarditis was idiopathic. Most patients received aspirin rather than ibuprofen or glucocorticoids as concomitant therapy. Adherence to the study drug was greater than 95% and did not differ between the two groups. Patients were followed for a mean of 22 months and none were lost to follow-up. Analysis was by intention to treat.

The primary outcome of incessant or recurrent pericarditis was decreased in the colchicine group compared with the placebo group (16.7% vs. 37.5%; relative risk = 0.56; 95% confidence interval, 0.30 to 0.72;  $P < .001$ ). In addition, the colchicine group had significantly better outcomes with regard to the number of patients with persistent symptoms at 72 hours (19% vs. 40%), rate of remission within one week (85% vs. 58%), time to first recurrence (25 weeks vs. 18 weeks), and rate of pericarditis-related hospitalizations (5% vs. 14%). There was no difference in overall adverse effects or gastrointestinal adverse effects between the two groups.

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

**Funding source:** Government

**Allocation:** Concealed

**Setting:** Inpatient (any location) with outpatient follow-up

**Reference:** Imazio M, Brucato A, Cemin R, et al., ICAP Investigators. A randomized trial of colchicine for acute pericarditis. *N Engl J Med*. 2013;369(16):1522-1528.

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