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This series is coordinated by Sumi Sexton, MD, Associate Medical Editor.

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## Evidence Does Not Show Benefit of Treating Mycoplasma Pneumonia in Children

### Clinical Question

In children with confirmed mycoplasma pneumonia, is treatment effective in decreasing the duration of symptoms?

### Bottom Line

After all these years of knowing about *Mycoplasma pneumoniae* as a cause of lower respiratory tract infections and the effectiveness of various antibiotics against it in a Petri dish, we still do not know whether treating mycoplasma pneumonia in children is effective. This study does not tell us to stop testing and treating, but it does not tell us to start, either. (Level of Evidence = 1a-)

### Synopsis

The authors of this meta-analysis searched PubMed for observational and randomized trials evaluating antibiotic treatment of confirmed lower respiratory tract infections caused by *M. pneumoniae* in children. They searched bibliographies of identified studies, but did not search other databases and thus may have missed applicable articles. They did not include unpublished studies, but included studies published in any language. Because most of the studies enrolled children with pneumonia due to any cause who were given antibiotics effective against

several organisms, the authors had to do a bit of statistical jujutsu to produce relevant results for just the children with mycoplasma. Study quality was reviewed, but the assessment focused on various selection and reporting biases rather than on indicators of study conduct as is typically done in meta-analysis. In their analysis of the five randomized controlled studies (N = 2,233), the authors found no evidence to support or refute treatment. Individually, four of the five studies found no benefit, although there was heterogeneity among the studies and also a risk of publication bias.

**Study design:** Meta-analysis (other)

**Funding source:** Self-funded or unfunded

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

**Reference:** Biondi E, McCulloh R, Alverson B, Klein A, Dixon A. Treatment of mycoplasma pneumonia: a systematic review. *Pediatrics*. 2014;133(6):1081-1090.

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## Ultrasonography Is Best Initial Imaging for Suspected Kidney Stones

### Clinical Question

What is the best initial imaging for a patient with suspected kidney stones?

### Bottom Line

Initial point-of-care or radiology department ultrasonography is a safe and accurate approach to the patient with clinically suspected kidney stones, which helps reduce radiation exposure. Although computed tomography (CT) remains the most accurate test overall, a strategy beginning with ultrasonography (including point-of-care ultrasonography performed by an emergency physician) can help many patients avoid CT and its associated radiation. Note that these findings may not apply to patients who are very obese. (Level of Evidence = 1b-)

## Synopsis

These researchers identified adults (range = 18 to 76 years of age) with flank or abdominal pain and clinical suspicion of kidney stones. Patients at risk of a serious alternate diagnosis, such as aneurysm or myocardial infarction, were excluded, as were men who weighed more than 129 kg (285 lb) and women who weighed more than 113 kg (250 lb). Patients were randomized into one of three groups: (1) point-of-care ultrasonography performed by trained emergency physicians, (2) ultrasonography performed in a radiology department, or (3) CT performed in the radiology department. Of the 3,638 patients originally assessed for eligibility, 2,776 were randomized, 2,759 were included in the intention-to-treat population, and approximately 4% were lost to follow-up. The groups were balanced regarding age, sex, race, pain, and other factors, but there is a puzzling discrepancy in group numbers: The CT group included 958 participants compared with 908 in the point-of-care ultrasonography group and 893 in the radiology department ultrasonography group. This leads me to question how well the allocation was concealed. The primary outcome was the likelihood of a complication due to a high-risk diagnosis, which occurred in less than 1% of patients in each group.

Not surprisingly, radiation exposure was significantly higher during the subsequent six months for those assigned to the CT group (17.2 vs. 9.3 to 10.1 mSv;  $P < .001$ ). There were no significant differences between groups regarding rates of return to the emergency department, hospital admission after emergency department discharge, or self-reported pain score. The accuracy of the three strategies for the diagnosis of nephrolithiasis among those with at least 30 days of follow-up was remarkably similar, with sensitivities of 84% to 86% and specificities of 50% to 53%. Note that these numbers were based on the group that was initially randomized and included any subsequent imaging studies (usually CT), which occurred in 41% of the point-of-care ultrasonography group and in 27% of the radiology department ultrasonography group. Based on the initial imaging tests alone, the sensitivity was higher for CT (88% vs. 54% to 57%).

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

**Funding source:** Government

**Allocation:** Uncertain

**Setting:** Emergency department

**Reference:** *Smith-Bindman R, Aubin C, Bailitz J, et al. Ultrasonography versus computed tomography for suspected nephrolithiasis. N Engl J Med. 2014; 371(12):1100-1110.*

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## Increasing HDL Level Ineffective at Decreasing Cardiovascular Events

### Clinical Question

Does treatment aimed at increasing high-density lipoprotein (HDL) levels, in addition to treatment with statins, decrease cardiovascular events and deaths due to any cause?

### Bottom Line

Being the “good” cholesterol is not the same as being the “useful” cholesterol. Drug therapy aimed at increasing HDL cholesterol levels, when added to statin treatment, does not decrease patients’ likelihood of experiencing a cardiovascular event or of dying earlier. (Level of Evidence = 1a)

### Synopsis

The researchers searched three databases, including the Cochrane Library, reference lists of previous meta-analyses and reviews, and conference proceedings to find large randomized trials (more than 1,000 patients) that compared drugs aimed at increasing HDL cholesterol levels vs. various interventions that do not increase HDL levels. Two authors independently completed the searches, and three authors extracted the data. They found 11 studies of niacin, 20 studies of fibrates, and eight studies of cholesteryl ester transfer protein (CETP) inhibitors such as anacetrapib and dalcetrapib (this class of drugs is not available in the United States, Canada, or the United Kingdom). All told, the studies enrolled more than 100,000 patients and found that attempting to increase the HDL level conferred no benefit on all-cause mortality, coronary heart disease mortality,

or stroke likelihood. The problem, if you want to call it that, is the effect of statins—studies conducted in the current “statin era” do not show an added benefit of trying to bump HDL levels even though early studies of niacin by itself showed a pronounced effect in reducing nonfatal myocardial infarction.

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

**Funding source:** Self-funded or unfunded

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

**Reference:** Keene D, Price C, Shun-Shin MJ, Francis DP. Effect on cardiovascular risk of high density lipoprotein targeted drug treatments niacin, fibrates, and CETP inhibitors: meta-analysis of randomised controlled trials including 117,411 patients. *BMJ*. 2014;349:g4379.

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## Antidepressants and Psychological Therapies Are Effective for IBS

### Clinical Question

Are antidepressants and psychological therapies effective treatments in adults with irritable bowel syndrome (IBS)?

### Bottom Line

Antidepressants and psychological therapies are effective in treating the symptoms of IBS. This study, an update of a similar systematic review and meta-analysis completed five years ago, found the same level of effectiveness for both treatment approaches as the previous analysis, despite 14 new studies that have been published in the interim. (Level of Evidence = 1a)

### Synopsis

The authors performed a thorough search of the literature to identify all studies examining the effectiveness of antidepressants and psychotherapies for adults with IBS.

They included randomized controlled trials that compared antidepressants with placebo or psychological treatment with a control group. The researchers identified 92 relevant articles, of which 46 met inclusion criteria. Of these 46 trials, 29 studied psychological therapies, 16 studied antidepressants, and one investigated both. Only two took place entirely in the primary care setting. Collectively, more than 2,100 patients were included in the psychological treatment studies and more than 1,000 in the antidepressant trials. Data were pulled for review by intention-to-treat whenever possible. The pooled relative risk of not improving abdominal pain or global IBS symptoms with an antidepressant vs. placebo was 0.67 (95% confidence interval [CI], 0.58 to 0.77; number needed to treat = 4). The relative risk of adverse events while taking an antidepressant vs. placebo was based on seven studies and calculated at 1.63 (95% CI, 1.18 to 2.25; number needed to treat to harm = 9). Tricyclic antidepressants and selective serotonin reuptake inhibitors were found to be effective. The pooled relative risk of not improving IBS symptoms with a variety of treatments vs. control was 0.68 (95% CI, 0.61 to 0.76; number needed to treat = 4). Psychological approaches found to be effective included cognitive behavior therapy, hypnotherapy, and psychotherapy.

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

**Funding source:** Unknown/not stated

**Setting:** Outpatient (any)

**Reference:** Ford AC, Quigley EM, Lacy BE, et al. Effect of antidepressants and psychological therapies, including hypnotherapy, in irritable bowel syndrome: systematic review and meta-analysis. *Am J Gastroenterol*. 2014;109(9):1350-1365.

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