Does this meet PURL criteria?			
Relevant	Yes	Medical care setting	Yes
Valid	Yes	Implementable	Yes
Change in practice	Yes	Clinically meaningful	Yes

The treatment group was to increase intake of fluid by 1.5 L daily (facilitated by the home delivery of 500 mL bottles of water, sufficient for three per day); the actual increase in self-reported fluid intake was 1.7 L (1.15 L of which was water). The control group resumed their regular fluid intake. Adherence was monitored by monthly phone calls, and outcomes were assessed at six and 12 months. Overall, 327 cystitis episodes were noted, 111 in the water group and 216 in the control group. After twelve months, the treatment group had almost 50% fewer episodes of UTI (both clinical and culture proven). By the end of the 12-month study period, the number needed to treat with increased water intake was three to prevent one episode of UTI. Additional data of self-reported voids, and six- and 12-month urine testing appeared to confirm adherence to the treatment protocol.

Bottom line: Increasing hydration by a specified amount in premenopausal patients with recurrent UTIs and low-volume fluid intake will reduce the frequency of UTIs; however, if simply advising patients to do so will result in a sustained change in behavior that would produce the expected decrease in infections remains unknown.

Thomas Garigan, MD
Benjamin J. McCollum, MD, MAJ, MC
J. Scott Earwood, MD
DDEAMC, Fort Gordon
Family Medicine Residency
Fort Gordon, GA

The authors declare no conflicts of interest.

Getting a HAND-le on OA pain with pregabalin and duloxetine

Sofat N, Harrison A, Russell MD, et al. The effect of pregabalin or duloxetine on arthritis pain: a clinical and mechanistic study in people with hand osteoarthritis. *J Pain Res*. 2017; 10:2437–2449. Erratum in: *J Pain Res*. 2017; 10:2843.

DOI 10.1097/EBP.0000000000000639

This randomized, controlled trial compared pregabalin, duloxetine, and placebo for treatment of osteoarthritis (OA) of the hand in adults 40 to 75 years old. Medications were initiated at pregabalin 150 mg daily and duloxetine 30 mg daily, titrated at the end of week 1 to pregabalin 300 mg daily and duloxetine 60 mg daily and then down titrated to the starting dose at week 11. Study outcomes were collected at week 13. The primary outcome included change in numerical rating pain score (NRS=0–10, where 10 is the highest level of pain) and the Australian and Canadian Hand Osteoarthritis Index (AUSCAN) rating scale for pain. Secondary outcomes included AUSCAN rating scales for stiffness and function and the Hospital Anxiety and Depression Scale (HADS). Sixty-five patients were included across the three treatment groups (n=22 for pregabalin, n=21 for duloxetine, and n=22 for placebo). In the pregabalin group, NRS pain mean score change was –2.7 (95% CI, –1.9 to –3.5; P=.023), AUSCAN pain (scale range 0–500) mean change was –132.1 (95% CI, –181.1 to –82.9; P=.008), AUSCAN function (scale range 0–900) mean change was –246.4 (95% CI, –341.7 to –151.0; P=.009), and AUSCAN stiffness (scale range 0–100) mean score change was –18.7 (95% CI, –33.1 to –4.3; P=.22). In the duloxetine group, no statistically significant changes were noted across NRS or AUSCAN rating scales. The HADS scores did not change in either pregabalin or duloxetine groups. Most common side effects reported were digestive problems, mental disturbances, dry mouth, headaches, dizziness, and loss of balance.

Does this meet PURL criteria?			
Relevant	No	Medical care setting	Yes
Valid	No	Implementable	Yes
Change in practice	Yes	Clinically meaningful	Yes

Bottom line: Pregabalin may relieve pain and functionality in OA of the hand in adults. Duloxetine did not show relief in pain, stiffness, or functionality in OA of the hand in adults, but these results are limited by a short follow-up period and dose reduction before the measurement of endpoints.

Jennie B. Jarrett, PharmD, BCPS, MMedEd
University of Illinois at Chicago
Chicago, IL

The author declares no conflicts of interest.

In otherwise asymptomatic patients, is clinical examination alone sufficient to differentiate functional systolic murmurs from pathologic murmurs?

It depends. When performed by cardiologists in a clinic setting, the classification of a murmur as functional predicts normal cardiac anatomy on echocardiogram (positive likelihood ratio [LR] of 7.4) and the classification of a murmur as pathologic predicts valvular heart disease, shunts, or gradients (positive LR of 11.3). Pathologic classification of murmurs by internists in the emergency room is less accurate for predicting valvular heart disease (positive LR 2.6) (SOR: **B**, prospective diagnostic cohort studies).

DOI 10.1097/EBP.0000000000000652

A 2000 prospective, diagnostic, cohort study compared cardiac examination with 2-dimensional (2D) echocardiogram in determining the diagnostic accuracy of physical examination in patients (n=100) with known systolic murmurs of unclear etiology and no prior echocardiographic evaluation.[1] Patients (17–92 years old; mean age, 58 years; 57% women) underwent thorough cardiac examination, performed by two cardiologists, which included cardiac auscultation, estimation of jugular venous pressure, and assessment of apical impulse and carotid artery upstroke. Evaluating physicians (who were blinded to patient history, electrocardiogram (ECG), and other medical data), graded murmurs based on loudness and other characteristics noted during dynamic testing (eg, clicks, thrills, changes in intensity). Based on clinical examination, the cardiologists then identified murmurs as functional (ie, judged to have normal cardiac anatomy) or organic (ie, assuming anatomical defect). If considered organic, cardiologists further categorized the underlying heart defects as significant or nonsignificant. Significant heart defect was defined as echocardiographic evidence of moderate or severe valvular heart disease, congenital shunts, or intraventricular gradients. All patients then underwent diagnostic 2D and Doppler echocardiogram to evaluate for underlying organic heart defects. Results showed that 21% of patients had normal anatomy on 2D echocardiogram, and 79% of patients had an organic heart defect; of whom, 37% were considered as significant. Cardiac examination had a sensitivity of 67% and a specificity of 91% in diagnosing functional murmurs, with a corresponding positive likelihood ratio (LR+) of 7.4 and a negative likelihood ratio (LR–) of 0.36. Significant heart defects could also be diagnosed by examination with a sensitivity of 79% and specificity of 93% (LR+ of 11.3 and LR– of 0.22). Cardiac examination was best at ruling out aortic stenosis (AS) (LR– of 0.35) and worst at ruling out aortic regurgitation (LR– of 0.82). Cardiac examination was excellent at diagnosing isolated moderate–to-severe AS (LR+ of 77); however, the severity of AS was underestimated or completely missed in 27% of the cases because many of these patients were misidentified as having mitral regurgitation (MR) instead of AS.

Another 2004 prospective diagnostic cohort study (n=203) compared the diagnostic accuracy of clinical evaluation, performed by internal medicine attending physicians working in emergency departments, in distinguishing innocent systolic murmurs from echocardiography-proven valvular heart disease.[2] Patients were consecutive adults presenting to the emergency department with unspecified chief complaints (mean age, 64 years; range, 17–95 years). After being provided access to all available patient medical data (including ECG, chest radiography, laboratory results, and medical records), patients were evaluated