lower risk for thromboembolic events and cataracts. In another report from the STAR P-2 trial, no significant differences were found between tamoxifen and raloxifene groups in patient-reported outcomes for physical health, mental health, or depression, although the tamoxifen group reported better sexual function.

**IMPACT ON INTERNAL MEDICINE:** Randomized studies have now confirmed that raloxifene reduces the incidence of breast cancer. In the RUTH (Raloxifene Use for The Hearth) trial, also published in 2006, raloxifene was shown to reduce the risk for invasive breast cancer compared with placebo (hazard ration, 0.56; 95% CI: 0.38 to 0.83) – in this case in a group of elderly women (mean age 67.5 years) with CHD or multiple CHD risk factors. The RUTH study also replicated the finding that raloxifene does not significantly affect the risk for CHD or stroke, but did find an association with fatal stroke (hazard ratio 1.49; 95% CI: 1.00 to 2.24). Despite these encouraging results, the question of which asymptomatic women should receive medication to reduce the risk for breast cancer is far from settled. When tamoxifen was shown to reduce breast cancer incidence in high-risk women, many experts were surprised by how few women subsequently took tamoxifen for breast cancer prevention. Theories were proposed about why this might be so, including primary care physicians’ lack of familiarity with prescribing tamoxifen and women rejecting tamoxifen because of perceived risks, particularly “trading” the risk for one cancer (breast cancer) for another cancer (uterine cancer). Some proponents of the STAR trial hoped that if raloxifene were found to be equal to tamoxifen in reducing breast cancer incidence, primary care physicians and their patients would be more receptive to the use of a drug already widely prescribed for the prevention of osteoporotic fractures. Guidelines from the United States Preventive Services Task Force (USPSTF) and the American Society of Clinical Oncology (ASCO) remain nondirective, stating only that drug therapy for breast cancer prevention should be discussed with high-risk women. This reflects clinicians’ ambivalence about this approach, which partially results from the fact that the absolute risk reduction for women meeting the criteria from the P-1 and P-2 studies is small. Most women over the age of 60 years in the U.S. would meet criteria for treatment under the risk assessment method used in the P-1 and P-2 trails. In the RUTH trial, participants had a five-year predicted risk for invasive breast cancer of 1.73%, above the 1.66% used to define “high risk” in current guidelines. Yet the absolute risk reduction was only 1.2 cases of invasive breast cancer per 1000 women treated for one year. Given associated risks, and because most women who develop breast cancer do not die of it, many clinicians do not find this degree of benefit compelling.

**REFERENCES**


This is representative of the retrospective cohort studies presented in the meta-analysis by Kapoor and colleagues. In this study of 1163 vascular surgeries, cardiac complications occurred in 157 patients. Statin users had a significantly lower event rate than non-statin users (9.9% vs. 16.5%, p = 0.001). Patients were not randomly assigned in this retrospective cohort study.

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**Strategies to reduce postoperative pulmonary complications after noncardiothoracic surgery: systematic review for the American College of Physicians**

Lawrence VA, Cornell JE, Smetana GW; American College of Physicians.

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**AIM:** To systematically review the literature regarding preoperative pulmonary evaluation and to develop a guideline for clinicians who care for patients in the perioperative period. **METHODS:** A MEDLINE search from Jan 1, 1980 through June 30, 2005, and a hand search of the bibliographies of retrieved articles. Explicit inclusion criteria and use of a standardized abstraction instrument. The authors included English language articles that evaluated clinical postoperative pulmonary complications with at least 25 subjects. They excluded articles of ambulatory or cardiothoracic surgery, those using administrative data only, those that reported only physiologic parameters as the principal outcome, and those from developing countries. Summary strength of evidence scores were developed for risk factors laboratory tests, and intervention strategies based on a modified version of the US Preventive Services Task Force (USPSTF) criteria. **RESULTS:** Of 16,959 articles screened by title and abstract search, 943 were reviewed in detail, and 145 met the predefined inclusion criteria. These studies, including 85 univariate analyses, 29 multivariable analyses, 20 randomized trials and 11 systematic reviews formed the basis of the review. Good evidence (“A” strength) supported the following as risk factors:

- patient-related risk factors: advanced age, ASA class ≥ 2, congestive heart failure, functional dependence, chronic obstructive pulmonary disease;

Among laboratory tests, only serum albumin < 3.5 mg/dl earned an “A” grade. The authors did not recommend routine spirometry or chest radiographs to stratify risk. Among strategies to reduce risk, good evidence (“A” strength) supported only postoperative lung expansion maneuvers. Fair evidence (“B” strength) supported selective postoperative nasogastric tube use after abdominal surgery and short acting intraoperative neuromuscular blockers. The guideline itself provides 6 recommendations based on these findings. **CONCLUSION:** Surgical site and selected patient-related factors influence the risk of postoperative pulmonary complications. Among potential interventions to reduce risk, the strongest evidence is for postoperative lung expansion maneuvers.

**IMPACT ON INTERNAL MEDICINE:** While preoperative cardiac risk indices and guidelines have existed for decades, this is the first systematic review and published guideline for preoperative pulmonary evaluation. The authors have provided summary odds ratios that describe the magnitude of risk for each potential factor. Clinicians may
use these estimates when advising patients and providing consultative advice to surgery and anesthesia colleagues. The strength of evidence scores and guideline narrow the field of potential risk factors to a small number that clinicians may now use in practice. The literature regarding interventions to reduce risk is extensive but in some cases inconclusive or contradictory. Through a systematic review and application of strict inclusion and scoring criteria, the authors have determined which interventions reduce risk. Clinicians now have a tool to estimate preoperative pulmonary risk, and to propose strategies to reduce risk for high risk patients. In these papers, the authors also identify areas where the evidence is poor or conflicting, and suggest goals for further research.

SUGGESTED READING
Available from the bibliography of the two systematic reviews.