CONCLUSIONS
In this large cohort of obese Swedish patients, bariatric surgery led to reductions in mortality (total, cardiovascular, and cancer-related) compared with matched controls over several years. The participation of multiple sites in this study makes these results more generalizable to a “real-world” situation. However, because patients were not randomized, it is possible that unmeasured differences between the groups contributed to the findings. Also, most of the surgeries done in this study were gastric banding, not bypass, so these data may or may not be applicable to bypass surgery. Finally and most important, the lack of specific follow-up care in the control group might mean that the reduction in mortality in the surgery group is due to increased participation in the healthcare system independent of the surgery itself. Thus, these results are very promising but not conclusive that bariatric surgery reduces mortality.

IMPACT ON INTERNAL MEDICINE
This is the first study to show a reduction in mortality for any weight loss intervention, either surgical or lifestyle modification. A retrospective study published in the same journal found similar improvements in outcomes. Previous nonsurgical studies were usually too short or had results that were small and not sustainable over the many years required to show differences in mortality. While there are limitations to this study, particularly the lack of randomization, the results are noteworthy. Even the lack of increased mortality in the subject group is notable given the potential adverse effects of the procedure. Coupled with many other studies showing improvements in quality of life, sleep apnea, diabetes control, cardiovascular events, musculoskeletal pain, and functional status, this study supports the use of bariatric surgery in select groups of obese patients.

RELATED REFERENCE

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<table>
<thead>
<tr>
<th>Weight loss at 10 years</th>
<th>Control</th>
<th>Surgical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>+ 1%</td>
<td>-18%</td>
</tr>
<tr>
<td>Mortality</td>
<td>6.3%</td>
<td>5% (P = 0.02)</td>
</tr>
<tr>
<td>Mortality with baseline CVD</td>
<td>25%</td>
<td>19% (P &lt; 0.05)</td>
</tr>
<tr>
<td>Mortality without baseline CVD</td>
<td>6%</td>
<td>5%</td>
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</tbody>
</table>

CVD = cardiovascular disease.

HAZARDS OF RADIOLOGIC TESTING

Estimating risk of cancer associated with radiation exposure from 64-slice computerized tomographic coronary angiography


AIM
To determine the lifetime attributable risk (LAR) of cancer incidence associated with computed tomographic coronary angiography (CTCA) and to assess the influence of age, gender, and scan protocol on cancer risk.

METHODS
Using a computational model and simulation methods, the amount of ionizing radiation that a standard, spiral CTCA delivers to organs of male and female patients was assessed. Then, using the well-accepted approach of the National Academy’s Biologic Effects of Ionizing Radiation Seventh Report (BEIR VII), age- and sex-specific LARs for various types of cancer (e.g., lung, breast) and for the patients as a whole were estimated.

RESULTS
Expressed in the standard measure of radiation, the millisievert (mSv), the organ doses deriving from a standard CTCA ranged from 42 to 91 mSv to the lungs and from 50 to 80 mSv to the female breast (For purposes of comparison, the amount of radiation delivered by a standard chest radiograph is 0.01 mSv).

The LAR of cancer incidence from CTCA varied greatly based on patient age and sex. For example, radiation exposure from a single, standard CTCA is associated with an LAR of cancer of 1 in 3261 for an 80 year-old man, but 1 in 143 for a 20-year-old woman. Using simulation methods, the authors determined that dose-reduction strategies, particularly electrocardiographically controlled tube current modulation (ETCTM), substantially decreases these risk estimates (e.g., for a 20-year-old woman, the LAR improves for 1 in 143 to 1 in 219). In contrast, a combined scan of the heart and aorta was associated with a worse LAR (e.g., 1 in 114 for a 20-year-old woman).
CONCLUSIONS
Radiation from a single CTCA carries a measurable risk for cancer, and that risk varies greatly depending on the patient’s age and gender. This LAR may be negligible for an 80-year-old man, but not for a 20-year-old woman. Women are more sensitive to the effects of radiation both for breast and lung cancer. Dose-reducing strategies, such as ECTCM, may reduce the LAR of cancer incidence from CTCA.

IMPLICATIONS FOR INTERNAL MEDICINE
Sixty-four slice CTCA provides helpful visualization of the coronary arteries with high sensitivity and specificity (negative predictive value >95%), while sparing patients the morbidity of cardiac catheterization, which is associated with a 1.7% rate of major complications. CTCA may emerge as the diagnostic test of choice for patients with intermediate probability of coronary artery disease; and it has been adopted as such in many emergency departments. However, the results of this study caution against indiscriminate use of this noninvasive test. While dose-reducing strategies, such as ECTCM, reduce risks, the LAR of cancer incidence associated with CTCA remain a concern, particularly in young women. In this population, alternate diagnostic methods for coronary artery disease that do not involve ionizing radiation should be considered.

CORONARY ARTERY DISEASE
Optimal medical therapy with or without PCI for stable coronary disease (COURAGE)
Boden WE, O’Rourke RA, Teo KK, et al.

AIM
To determine whether percutaneous coronary intervention (PCI) reduces mortality and/or cardiac events in patients with stable coronary disease.

METHODS
More than 2,000 patients with stable coronary artery disease in 50 North American medical centers were randomized to PCI plus optimal medical management vs. optimal medical management alone. All patients had at least one coronary artery stenosis > 70% plus abnormal nuclear imaging, or at least one stenosis > 80%. Exclusion criteria included recent MI, class IV angina, ejection fraction < 30%, or clinical CHF. The targeted endpoint was death or coronary events, using intention-to-treat analysis.

RESULTS
Subjects were mostly men, mean age 61. Most had more than one reversible defect on nuclear imaging, and most had ≥2 significant stenoses on angiography. The two groups were not different in use of most typical cardiac medications, including aspirin, beta-blockers, angiotensin-converting enzyme (ACE) inhibitors, and statins at baseline and throughout the study (71-95% range for the different medications). Blood pressure control was excellent (average 124/70), as was low-density lipoprotein cholesterol (mean 71) in both groups. At 5 years, there was no statistical difference between the two groups in mortality (5.8% vs. 5.9%) or death/MI composite (19% in PCI group vs. 18.5% in medical management group). The PCI group had slightly lower angina scores at the end of the first and second years of the study, but this difference disappeared by the end of the study (year 5). The medical management group underwent more PCI procedures after randomization than did the intervention group (32% vs. 21%, *P* <0.01), however, the total number of procedures over the whole study were still far fewer in the medical management group. Similar numbers of subjects in each group eventually required coronary bypass grafting.

CONCLUSIONS
In patients with stable, multivessel coronary artery disease, PCI does not reduce mortality or cardiac events compared with optimal medical management, although it does reduce angina scores in the short-term. This study is limited by the patient population, which is overwhelmingly white men, most of whom were from the VA health system. Patients with left ventricular dysfunction and/or CHF were excluded, so these data are not necessarily generalizable to patients with these conditions. The medical management group had care that was superior to that usually available in practice. Finally, this study was done prior to the advent of drug-eluting stents, so these conclusions may or may not still apply.

IMPACT ON INTERNAL MEDICINE
The use of PCI therapies for acute and stable coronary disease is well accepted in many situations. PCI reduces...