Don’t recommend cancer screening in adults with life expectancy of less than 10 years.

Screening for cancer can be lifesaving in otherwise healthy at-risk patients. While certain screening tests lead to a reduction in cancer-specific mortality, which emerges years after the test is performed, they expose patients to immediate potential harms. Patients with life expectancies of less than 10 years are unlikely to live long enough to derive the distant benefit from screening. Furthermore, these patients are more likely to experience the harms since patients with limited life expectancy are more likely to be frail and more susceptible to complications of testing and treatments. Therefore, the balance of potential benefits and harms does not favor cancer screening in patients with life expectancies of less than 10 years.

Summary of Update

We conducted a search in PubMed, Embase and Cochrane databases for the period January 1, 2012--July 30, 2015 to identify unique systematic reviews or meta-analyses focused on various aspects of screening for cancer. This search yielded 149 candidate publications, of which 44 were relevant to our topic. The systematic reviews and meta-analyses were reviewed and assessed for any meaningful contributions to the original SGIM Choosing Wisely recommendation on cancer screening. Independently, we reviewed articles about lung cancer screening over the past 3 years in order to add recommendations for that screening into our document. Finally, because the cancer screening recommendation specifically focuses on anticipated 10-year life expectancy, we reviewed clinical resources for assessing life expectancy and cited two resources in our reference list. On the basis of these additional data, we expanded the recommendation to include lung cancer screening and generally reaffirmed the essential elements of the initial recommendation. All members of our group endorsed the new wording for the recommendation.

Discussion
Cancer screening can prevent mortality from target cancers. Screening for breast and colon cancer has been shown to prevent disease-specific mortality and is widely recommended; screening for prostate cancer is of unclear benefit but is still widely performed in the U.S. Screening reduces mortality by finding cancers at an earlier, more treatable stage, but reductions in mortality resulting from screening are not apparent immediately. Patients with life expectancy of less than 10 years may die of other causes before experiencing any benefit from cancer screening but are still exposed to potential harms from the screening tests, a resulting diagnostic evaluation, or unnecessary treatments. An analysis of mortality data from randomized trials of screening for colon and breast cancer found that mortality was prevented in one participant out of 1000 only after 10.3 years of follow-up for colorectal cancer and 10.7 years of follow-up for breast cancer. The mortality benefit from screening for prostate cancer has been questioned and routine screening is not currently recommended by the U. S. Preventive Services Task Force (USPSTF). However, the European Randomized Study of Screening for Prostate Cancer, which ultimately did find that screening for prostate cancer reduced disease-specific mortality, did not find a significant reduction in mortality until a follow-up time of 11 years.

Besides the lack of benefit, screening patients with shorter life expectancy exposes them to potential harms. In the case of colon cancer screening with endoscopy, serious harms include perforations, hemorrhage, cardiovascular events, infection, and death. A 2008 systematic review for the USPSTF found that these complications occur in 2.8 per 1000 procedures (95% confidence interval, 1.5-5.2 per 1000 procedures). Other harms may include electrolyte abnormalities from the colonoscopy preparation and complications from sedation. All potential harms may be more common in older patients and in those with severe comorbid conditions. Because harms are likely to outweigh benefits of cancer screening in patients with less than a 10-year life expectancy, a 2012 guideline from the American College of Physicians recommends against colon cancer screening in adults over age 75 and those with estimated life expectancy of less than 10 years.

Potential harms of breast cancer screening include discomfort, anxiety, additional invasive testing, and over-diagnosis. While USPSTF guidelines regarding breast cancer screening have not specifically discussed screening in patients with limited life expectancy, they note the importance of balancing benefits and harms and specify ages above which screening might not be indicated. The newly released American Cancer Society breast cancer screening guidelines (2015) state that “screening should continue as long as a woman is in good health and expected to live 10 more years or longer.”

Potential harms of treatment following positive screenings for prostate cancer include incontinence, erectile dysfunction, and death after surgery, which occurs after approximately 5 in 1000 surgeries. Harms from prostate cancer screening are likely to be more common in older men and in those with comorbidities. Due to concerns about the potential harms of screening, a 2013 Guidance Statement from the American College of Physicians recommends against prostate cancer screening in men with life expectancy of less than 10-15 years.

Annual screening for lung cancer in smokers age 55-80 using low-dose computed tomography has now been endorsed by the USPSTF. The harms associated with finding a suspicious nodule include
additional radiation for repeat imaging and the risks associated with biopsy and/or surgery, which include hemorrhage, pneumothorax, infection, and death. In the modelling used by the USPSTF, annual low-dose computed tomography reasonably balanced benefits and harms through the age of 80 years. Importantly, persons too ill or unwilling to have curative surgery would not benefit from such a screening program.

Even at a given age, life expectancy can vary dramatically. Clinicians may be uncomfortable estimating life expectancy for their patients. The age at which patients have an estimated life expectancy of 10 years varies based on gender and overall health. Women in average health are expected to live 10 years at the age of 75 to 80 years. Women in the lowest 25th percentile for health are expected to live 10 years when they are 70 years old; those in the top 25th percentile are expected to live 10 years when they are 85 years old. Men in average health are expected to live 10 years at the age of 75. Men are expected to live 10 years prior to the age of 65 if they are in the lowest 25th percentile for health, and at age 80 if they are in the top 25th percentile for health. These estimated life expectancies may help physicians determine patient prognosis when considering the appropriateness of screening, but they are population-based averages with wide variability among patients. Physicians must ultimately individualize decisions for each patient. Tools to assist clinicians with prognostication have been developed and are publicly available.

References


