



## **Choosing Wisely -- Five Things Physicians and Patients Should Question**

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

Screening for cancer can be lifesaving in 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 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 for the period April 1, 2016—January 22, 2022 to identify unique systematic reviews or meta-analyses focused on various aspects of screening for cancer. This search yielded 40 candidate publications, of which 5 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. We also reviewed cancer screening recommendations since 2016 and related literature order to add recommendations for such screening. This yielded 15 additional publications. 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. Based on these additional data, we 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. The mortality benefit from screening for prostate cancer has been questioned<sup>2</sup> and routine screening is not currently recommended by the U. S. Preventive Services Task Force (USPSTF). The USPSTF recommends against prostate screening after the age of 70, in part due to lower life expectancy in that population, and compares their guidelines to those by other professional societies which recommend that such screening only be offered to patients with a life expectancy of 10-15 years.<sup>1</sup> Similarly, regarding breast cancer screening, the USPSTF guidelines from 2016 (an update is forthcoming in 2021) assess the balance of benefits and harms for those older than 75 as unclear.<sup>2</sup> A 2020 analysis did not find significant benefit in 8-year breast cancer mortality in women screened at age older than 75 years.<sup>3</sup>

In addition to lack of benefit, screening patients 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 2021 modeling study for the USPSTF found that these complications occur in 5 to 22 per thousand individuals.<sup>4</sup> 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, the USPSTF guidelines recommend an individualized discussion between clinicians and patients who are older than 75 years.<sup>5</sup> A 2019 guideline from the American College of Physicians recommends against colon cancer screening in adults over age 75 or those with estimated life expectancy of 10 years or less.<sup>6</sup>

Potential harms of breast cancer screening include discomfort, anxiety, additional invasive testing, and over-diagnosis.<sup>7</sup> The American Cancer Society breast cancer screening guidelines (2019) state that screening should not be offered to those older than 75 or a life expectancy of less than 10 years.<sup>8</sup> While other analyses indicate that benefits in those older than 65 can be significant, they decrease with comorbidities and decreased life expectancy.<sup>8</sup> Evidence regarding ductal carcinoma in situ specifically are consistent with this conclusion.<sup>10</sup>

Potential harms of treatment following positive screenings for prostate cancer include incontinence, erectile dysfunction, and death after surgery.<sup>11</sup> 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.<sup>12</sup> The 2019 USPSTF guidelines recommend against screening after 75 years. Recent European guidelines parallel these conclusions.<sup>13</sup>

Annual screening for lung cancer in smokers age 50-80 using low-dose computed tomography is endorsed by the USPSTF.<sup>14</sup> The recommendation states that screening should be stopped, among other reasons, for those patients who develop a health problem that “substantially limits life expectancy.” 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 and making accurate predictions is challenging.<sup>15</sup> [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 25<sup>th</sup> percentile for health are expected to live 10 years when they are 70 years old; those in the top 25<sup>th</sup> 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 25<sup>th</sup> percentile for health, and at age 80 if they are in the top 25<sup>th</sup> percentile for health.<sup>16</sup> An article in the Journal of the American Geriatrics Society in 2018 provided clinicians with strategies to calculate life expectancy and, in comparison, time to benefit, for a variety of preventive health interventions, including cancer screening.<sup>17</sup> These estimates may help physicians determine patient prognosis when considering the appropriateness of screening, but they are population-based averages with wide variability among patients. One review noted that even among those with limited life expectancy, an increased number of co-morbidities was actually associated with increased use of mammographic breast screening.<sup>18</sup>

In addition, clinicians may underestimate risk of harm and overestimate potential benefit of screening, tests, and treatments, which also can influence their recommendations.<sup>19</sup> Physicians must ultimately individualize recommendations for each patient or if indicated, to the patient's surrogate decision maker; more explicit guidance should be made available in that regard, as clinicians' approaches differ.<sup>20</sup> Tools to assist clinicians with prognostication have been developed and are publicly available.<sup>21,22,23</sup>

Even given the evidence of limited efficacy of cancer screening among those with limited life expectancy, clinicians must demonstrate appropriate, individualized, compassionate communication with each patient, which elicits patient preferences and leads to informed decision making by the patient. Life expectancy is only one of a number of factors which influence patients' decision making regarding cancer screening.<sup>24</sup> For many patients, a physician's recommendation to cease cancer screening may cause consternation and mistrust, a sense that the rug is being pulled out from under the relationship, as might happen with discussion of deprescribing. Moreover, some patients may not want to discuss life expectancy at all. A better approach might be a conversation that focuses on harms and benefits of screening in the context of the patient's health and functional status, age and other factors.<sup>25</sup>

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