VIEWPOINT

Cancer Screening: No Longer the Default

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Last fall, new international guidelines indicated that routine colorectal cancer screening is not appropriate for everyone, and instead should be reserved for those at highest risk.¹ The new guidelines represent the latest example of expert recommendations for cancer screening shifting from a general population approach to an individualized strategy. This shift has resulted from the gradual emergence of data highlighting that cancer screening has both pros and cons, suggesting the need for greater nuance in the use of screening.

In the case of colorectal cancer, the new recommendations were driven by evidence that screening reduces cancer mortality by a modest 6 per 1000 over 15 years, with no impact on overall mortality.² Moreover, screening is associated with rare but real harms—including bleeding requiring hospitalization and colonic perforation. For these reasons, the new guidelines suggest that colon cancer screening should be reserved for those with an estimated 15-year colon cancer risk above 3%—a population that might have more to gain.

Similar considerations apply to other cancer screenings. For breast and prostate cancer, the majority of screen-detected cancers may not represent lives saved but rather overdiagnoses—cancers that may otherwise not have become clinically apparent. In breast cancer, for example, for every woman who will avoid death from breast cancer over 10 years as a result of screening, 10 additional women who otherwise would not have been identified as having breast cancer will be diagnosed with the condition—resulting in unnecessary surgeries, radiation, and chemotherapy. Lung cancer screening has also been associated with a high burden of iatrogenic harms: for every 1000 individuals screened, more than half are expected to have abnormalities requiring tracking, 20 will require follow-up invasive tests such as bronchoscopy and

thoracotomy, and there may be more than 4 cases of lung cancer overdiagnosis.^{3, 4}

Epidemiological data also raise questions about the value of screening for many cancers. One recent analysis suggested that most cancer screening efforts have not led to clear improvements in cancer outcomes at the population level.⁵ For several cancers—including breast and prostate—screening seems to have led to substantial overdiagnosis (as evidenced by cancer incidence spikes without concomitant improvements in mortality).

In addition to the new colorectal cancer guidelines, a handful of other expert groups have begun recommending a conditional strategy for screening. Most notably, the United States Preventive Services Task Force (USPSTF) has begun recommending shared decision-making for prostate cancer screening, highlighting that many men will opt not to undergo screening after a full understanding of the risks and benefits. In addition, the Swiss Medical Board no longer recommends routine breast cancer screening.⁶ Yet in the USA, major screening guidelines for breast, colon, lung, and cervical cancers continue to promote screening as the default option.

We believe that a universal population screening approach is increasingly untenable. For all cancers, the decision to undergo screening represents a complex series of trade-offs. A healthy middle-aged woman, for example, might reasonably opt to forego breast cancer screening, accepting a slightly higher risk of dying from breast cancer in exchange for a lower risk of false alarms and overdiagnosis. Similarly, a heavy smoker would be justified in passing on lung cancer screening in order to avoid the iatrogenic downsides. Even for cervical cancer—which is generally believed to be the most effective cancer screening program—regular screening is associated with harms, such as false positives leading to colposcopies, adverse effects on reproduction, and discomfort that might cause a woman to opt for one of the less aggressive screening options listed by major guidelines, or, even in unusual circumstances, to decline.

For these reasons, we believe that cancer screening *in general* should no longer be viewed as an unconditional recommendation, but rather as an option to consider.

How should patients determine whether or not to proceed with screening? The new colorectal cancer guidelines introduced the concept of a risk threshold for determining which

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patients ought to receive screening. But as the authors acknowledge, evidence to support a threshold-based approach is scant, and risk calculations for individual patients would add complexity to the screening process. Furthermore, it is unclear which sub-populations, if any, will benefit from screening, and thoughtful people—even in high-risk categories—might reasonably opt to forego it.

Instead, we favor the approach taken by the USPSTF for prostate cancer: a shared decision-making strategy in which patients are informed about the pros and cons of screening and encouraged to make decisions that align with their personal values. The new international colorectal cancer guidelines also highlight the value of shared decision-making, coupled with the risk threshold, for guiding screening decisions. We believe that screening recommendations for all major cancers should shift to a shared decision-making approach.

Such a change would have important implications. First, and most importantly, clinicians would need to develop a practical approach for objectively and concisely educating their patients about screening and creating a process for them to decide whether or not to proceed. Though this is far from straightforward, recent research has demonstrated effective and expedient ways to do this.⁷ It must be acknowledged, however, that effectively presenting screening information in an objective and unbiased manner is challenging and will be influenced by how the information is presented.

Second, the change would require moving away from using cancer screening rates as standard performance metrics. Instead, these metrics should focus on higher value services, such as tobacco cessation, cardiovascular disease care, and vaccinations for proven indications. For health systems that do want to measure cancer screening performance, metrics should assess patient engagement with educational materials, rather than screening rates. Indeed, the new international colorectal cancer guidelines note that since “many well informed individuals will choose to forego screening, discussion and information sharing on screening for colorectal cancer would be a better marker of care rather than uptake.”

Third, because cancer screening discussions would become more time-consuming, we believe other healthcare professionals—including medical assistants, community health workers, and public health workers—could play a greater role in delivering patient education about screening.

Physicians could then focus on addressing the more complicated screening decisions and help to guide the minority of patients who remain uncertain after initial discussions.

Shared decision-making would represent a paradigm shift in how cancer screening typically occurs in clinical practice, at least for most cancers besides prostate. If implemented effectively, however, a shared decision-making approach could help ensure that cancer screening better aligns with individual patient values compared with universal screening.

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REFERENCES

1. Helsing LM, Vandvik PO, Jodal HC, Agoritsas T, Lytvyn L, Anderson JC, Auer R, Murphy SB, Almadi MA, Corley DA, Quinlan C, Fuchs JM, McKinnon A, Gaseem A, Heen AF, Siemieniuk RAC, Kalager M, Usher-Smith JA, Lansdorp-Vogelaar I, Bretthauer M, Guyatt G. Colorectal cancer screening with faecal immunochemical testing, sigmoidoscopy or colonoscopy: a clinical practice guideline. *BMJ*. 2019 Oct 2;367:15515
2. Jodal HC, Helsing LM, Anderson JC, Lytvyn L, Vandvik PO, Emilsson L. Colorectal cancer screening with faecal testing, sigmoidoscopy or colonoscopy: a systematic review and network meta-analysis. *BMJ Open*. 2019 Oct 2;9(10):e032773
3. Kinsinger, Linda S., et al. Implementation of lung cancer screening in the Veterans Health Administration. *JAMA internal medicine* 177.3 (2017): 399–406
4. Patz, Edward F., et al. Overdiagnosis in low-dose computed tomography screening for lung cancer. *JAMA internal medicine* 174.2 (2014): 269–274
5. Welch, H. Gilbert, Barnett S. Kramer, and William C. Black. Epidemiologic Signatures in Cancer. *New England Journal of Medicine* 381.14 (2019): 1378–1386
6. Biller-Andorno, Nikola, and Peter Jüni. Abolishing mammography screening programs? A view from the Swiss Medical Board *New England Journal of Medicine* 370.21 (2014): 1965–1967
7. Schrager SB, Phillips G, Burnside E. A simple approach to shared decision-making in cancer screening. *Fam Pract Manag*. 2017 May/ Jun;24(3):5–10

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