Response

I very much appreciated reading Eisinger’s correspondence regarding the article by Yankaskas et al. (1) and my accompanying editorial (2). In response, I wanted to address the point regarding the increase in potential years of life saved that might be gained by screening younger women. The comparison of life-years saved by screening a 74-year-old woman and by screening a 35-year-old woman is certainly a useful one to demonstrate the point of considering years of life saved as the utility of interest. Perhaps, however, this is not the most relevant comparison because there are consistent recommendations, implemented in practice, to begin screening well before the age of 74 years, so that the actual additional years of life gained by beginning at age 35 years would be
expected to be small (admittedly, from a collective perspective, as pointed out by Eisinger), even if one assumes a mortality reduction benefit similar to that in women aged 40–59 years.

The Cancer Intervention and Modeling Network modeling study by Mandelblatt et al. (3) provides additional insight into the issue of potential years of life saved. Four of the six efficiency frontier graphs reveal a marked flattening of the curve as screening is extended from women aged 50 years to women aged 40 years, indicating that there would be only a very small additional mortality reduction gained for the increase in the number of mammograms and the substantial increase in the number of false-positive test results. One would anticipate that all six curves would further flatten and approach the asymptote of no additional mortality benefit if the models were extended to women who were younger than aged 40 years.

This example illustrates the conundrum of population-based screening for (thankfully) rare diseases. One could logically hypothesize some potential effectiveness associated with screening in terms of mortality avoided and life-years saved, but at the expense of a remarkably high burden associated with false-positive results. If you or your family member is the “lottery winner,” the rare individual whose life might be extended, this trade-off is clearly acceptable, ignoring the negative health effects on all others who did not benefit from such early screening. In lieu of a better test, a better sense of who might benefit from screening (such as a woman who is at increased risk for developing breast cancer while she is in this age interval) would be very helpful. Unfortunately, Yankaskas et al. provide evidence that the ability to determine which women should be screened before the age of 40 years to most effectively and efficiently find the rare case of cancer is not robust.

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References

Notes
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