A review of:

"Tipping the Balance of Benefits and Harms to Favor Screening Mammography Starting at Age 40 Years"

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It is unclear why supposed experts in epidemiology continue to advise women and their physicians as if the age of 50 has some biological or scientific reason to be a threshold for breast cancer screening. NONE of the parameters of screening change abruptly at the age of 50 or any other age. Recall rates do not change suddenly at the age of 50. Recommendations for biopsy do not change suddenly and cancer detection rates do not change suddenly at the age of 50.

This charade to mislead women and their physicians has gone on long enough and needs to stop. Anyone who is making recommendations based on the age of 50 should have to provide ungrouped (and unaveraged) data that show that any of the parameters of breast cancer screening change abruptly at the age of 50. A woman in her late forties is far more like a woman in her early fifties than she is like a woman in her early forties. A 48 year old woman is indistinguishable from a woman age 52 with regard to the “risks” and benefits of screening. The incidence of breast cancer goes up steadily with increasing age with no abrupt change at the age of 50. The breast cancer detection rate goes up steadily with increasing age with no abrupt change at the age of 50. All groups now admit that, as the American Cancer Society and the American College of Radiology have been pointing out for decades, based on the strictest scientific evidence from randomized, controlled trials (RCT, screening and early detection saves lives for women beginning by the age of 40 (none of the trials included women younger than age 39) with no sudden change at the age of 50. Because younger women have a longer life expectancy, breast cancer among women in their forties accounts for more than 40% of the years of life lost to breast cancer.

The “Tipping the Balance” analysis is based on modeling. As the authors admit “model outcomes largely depend on the inputs and assumptions.” The use of the word "largely" is incorrect. Model outcomes are, entirely, dependent on the assumptions programmed in. The discrepancies in the results between the models clearly reflect this fact. Assumptions can be consciously or unconsciously used to bias the results.

The suggestion that screening should be based on risk factors is not supported scientifically. Most of the RCT involved women in the general population. They did not provide evidence that screening high risk women saves lives. Furthermore, the vast majority of women (75-90%) who develop breast cancer each year are not at elevated risk. If only high risk women are screened, then the vast majority of women who develop breast cancer will not have the benefit of screening.

Page 610 The "absolute benefits of screening before the age of 50 years will be larger for women with an increased risk for breast cancer than for average-risk women" is misleading. This is a reflection of the expense of screening. A life saved is a life saved, so for the individual whose life is saved based on screening, it doesn't matter whether or not she was at high risk or average risk.

Page 611 "We defined harm as the number of false-positive results and benefits as the number of breast cancer deaths averted and the number of life-years gained".

It borders on unethical to suggest that the benefit of having your life saved by screening and living another 40 years can be balanced against the "harm" of being recalled for additional mammographic views for what proves to not be cancer. If 1000 women are screened, approximately 100 will be recalled for additional imaging. For 85 or these 100 women a few extra mammograms or an ultrasound will resolve the question. Only 15 will be advised to have a breast biopsy and 4-6 of these will be found to have
breast cancer. This is a perfectly acceptable yield of cancers and is, in fact, higher than when a palpable lump is biopsied. When the palpable lump proves to be cancer it is larger and less likely to be cured than when the cancer is found by mammography.

The use of the word "harms" for women who are asked to return for additional mammographic views or an ultrasound based on a concern raised by a screening study is, inappropriately, pejorative. Certainly a recall from screening that causes anxiety is unfortunate, but what about the benefit of being relieved to find that she does not have cancer. What about the 90 plus percent of women who are relieved to hear that their screening mammogram is negative? Is this not a benefit that should be counted? Do those who balance "harms" against "benefit" ever sit back and really ask what they are saying? What misguided reasoning equates a recall from screening that shows no cancer as somehow being equivalent to dying from breast cancer?

Page 612 "Screening women with increased risk results in more life-years gained and more breast cancer deaths averted..." is 1. misleading and 2. false. To suggest that "more life years are gained" is grossly misleading. More lives will be saved screening average risk women since they have the most cancers. The concept of "life-years" saved takes the number of women saved and the years of life given to them and divides these by the number of women needed to be screened spreading the years of life saved for a woman over the population that was screened. It is a measure of cost and not benefit for the individual. If we assume that screening is as effective in finding cancer in high risk women as among the general population, then it will find more cancers for every 1000 women screened since a higher percentage of these women develop cancers, but since the vast majority of cancers are among women who are at average risk, many more total cancers will be found by screening women at average risk than those at high risk.

To suggest that biennial screening is as effective as annual simply means that the assumptions in the models are incorrect. The only way that allowing cancers to grow for two years instead of one with no effect on outcome is to suggest that cancers sit and wait the extra year without growing or metastasizing. If earlier detection saves lives, as has been proven by the randomized, controlled trials, then biennial screening cannot be as effective as annual.

We all agree that women should decide for themselves based on their assessment of the risks vs. benefits, but this ignores the fact that if reimbursement is based on recommendations from groups like the US Preventive Services Task Force, then screening will not be covered by insurance even if women in their forties wish to participate. This is not simply a biostatistical exercise, but there are real life implications.