# From the Editor

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Prevention of cancer has always been felt to be less expensive, more effective, and less morbid than treating it. Much has been invested in cancer prevention from many angles—vaccinations against, or treatment of, cancer-associated viruses, such as human papilloma virus (HPV) or hepatitis C, aspirin for prevention of polyps and cancer, and diet and exercise. Different levels of evidence now exist to make many of these treatments part of the routine for primary physicians, disseminated as guidelines, and increasingly covered by insurance. In this issue of *AJHO*, one of the world's experts on breast cancer prevention elucidates the background of prevention (and risk) though seminal trials.

The uptake of pharmacologic prevention of breast cancer has been dismal—despite the tens of thousands of patients randomized on numerous trials, FDA approval of tamoxifen dating back to 1998, and more recently followed by raloxifene. Despite the urgings of experts, both patients and physicians are pushing back. Why is this? One reason may be low mortality rate from breast cancer and the ability to detect disease early. In fact, the number of patients required to show an improvement in survival with tamoxifen prevention is simply too large. Some argue that even adequately powered studies might not show this, since more indolent hormone-responsive cancers are reduced with no impact on the more virulent triple-negative cases. From the public's point of view, side effects are key—tamoxifen certainly has a bad rap. This is probably exaggerated, since a placebo-controlled study shows many of the same side effects of hot flashes, myalgias, and fatigue in the placebo group, although clearly higher in tamoxifen—but not dramatically so. However, the more serious, but rarer side effects of uterine cancer and thrombosis are of concern. While these are clearly lessened or not seen at all with raloxifene, both drugs are vastly underused. Aromatase inhibitors appear to be even better preventive drugs, and without tamoxifen's risks; but, bone health could be a long-term consequence that will not be fully understood for decades.

There are other selective estrogen receptor modulators that have been optimized for bone, cardiac, and breast cancer prevention outcomes, but most are no longer being developed due to costs and lack of uptake. It is hoped that a better biological understanding of the hormonal pathway could lead to a new path—for example, understanding how estrogen can actually induce breast cancer apoptosis, and why estrogen, alone (without progesterone), appears to actually LOWER breast cancer risk. Hopefully, pharmacological cancer prevention is not dead—just at a crossroad.