Do We Need Another Bias?

I believe that overdiagnosis bias should not be considered one of the primary types of the bias in evaluating screening, as it was in the Primer in the most recent issue of **ecp**.[1]

So-called overdiagnosis bias is caused by the same phenomenon that causes length bias: variability of cancer progression. Slowly progressing cancer is more likely to remain undetected until a person dies of other causes. Cancer that does not progress is simply the most extreme case of a slowly progressing cancer.

It is impossible to know whether you've identified pseudodisease, because it is impossible to know at the time of cancer diagnosis when a person is going to die of something else. We should not name an entity based on the occurrence of a coincidental unrelated event after the fact. Not all types of autopsy-identified cancer are indolent, because it is impossible to know which ones would have progressed if the patient had lived.

Clarity in the presentation of these concepts is critical to communicating study results properly and increasing understanding of prevention. I find that increasing the number of terms used to describe biases usually decreases understanding. Misunderstanding of these concepts is rampant. I have found that the use of the term "overdiagnosis" to be particularly volatile and unproductive in discussions of screening— it is pejorative, accusatory, and ultimately illogical. It is more useful to first explain the concept of variability of cancer progression and the phenomena that result from this variability.

David H. Mark, MD, MPH
Contributing Editor, JAMA

Reference

1. Primer on lead-time, length, and overdiagnosis biases. Effective Clinical Practice. 1999;2:97.

THE EDITOR RESPONDS

I both appreciate and share Dr. Mark's general concern that increasing the number of terms used to describe medical processes often hinders genuine understanding. Furthermore, many screening experts would share his view that overdiagnosis bias is really best thought of as an extreme case of length bias. However, I do not.

Length bias is difficult to understand. I found it hard to learn and still find it hard to teach to others. Dr. Mark is correct that students need to first understand the concept of variability of cancer progression. The resulting phenomenon is then best communicated using a simplified model of fast- and slow-growing tumors. Thus, length bias, as commonly described, presumes disease progression (as does lead-time bias). The idea that some abnormalities might not progress (or might even regress) is so distinct that I believe it warrants a distinct label. "Overdiagnosis" is the label currently in use. And although students are surprised when they first learn the concept, they quickly understand how overdiagnosis can bias a comparison of survival in screening-detected cases versus cases detected by signs and symptoms.

Finally, I share Dr. Mark's interest in clearly presenting the epidemiologic issues that surround prevention. I welcome the thoughts of others.

H. Gilbert Welch, MD, MPH
Editor, **ecp**