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Overdiagnosis in cancer.

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Abstract

This article summarizes the phenomenon of cancer overdiagnosis—the diagnosis of a “cancer” that would otherwise not go on to cause symptoms or death. We describe the two prerequisites for cancer overdiagnosis to occur: the existence of a silent disease reservoir and activities leading to its detection (particularly cancer screening). We estimated the magnitude of overdiagnosis from randomized trials: about 25% of mammographically detected breast cancers, 50% of chest x-ray and/or sputum-detected lung cancers, and 60% of prostate-specific antigen-detected prostate cancers. We also review data from observational studies and population-based cancer statistics suggesting overdiagnosis in computed tomography-detected lung cancer, neuroblastoma, thyroid cancer, melanoma, and kidney cancer. To address the problem, patients must be adequately informed of the nature and the magnitude of the trade-off involved with early cancer detection. Equally important, researchers need to work to develop better estimates of the magnitude of overdiagnosis and develop clinical strategies to help minimize it.

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