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# How much overdetection is acceptable in cancer screening?

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People have highly variable views on how much overdetection is acceptable in cancer screening, finds a UK survey in *The BMJ* this week. The authors say invitations for screening "should include clear information on the likelihood and consequences of overdetection to allow people to make an informed choice."

This article is part of a series on overdetection (overdiagnosis) looking at the risks and harms to patients of expanding definitions of disease and increasing use of new diagnostic technologies.

Overdetection describes cancerous lesions that are picked up and treated but would never have caused symptoms or become fatal in a person's lifetime. This is typically seen if the cancers are so slow growing that they would not have been detected if screening had not taken place.

Yet little is known about how much overdetection people would find acceptable for cancer screening, and whether acceptability depends on the level of benefit and perceived harms.

So a team of researchers at the University of Oxford's Nuffield Department of Primary Care Health Sciences performed an online survey of 1,000 people aged 18 or older living in the United Kingdom, representative for age and sex according to the 2011 UK census. Just under a third (29 percent) of respondents had heard of overdetection before.

The survey included questions on three different types of cancer screening: breast cancer (for women), prostate cancer (for men), and bowel cancer (for both men and women). For each type separately, the researchers presented the absolute number of cases per year in the UK and a description of the treatment, including adverse effects.

They then presented two different screening scenarios: one indicating a 10 percent reduction in cancer-specific deaths and the second indicating a 50 percent reduction.

Immediately after each scenario, they asked respondents about the maximum number of people overdetected and overtreated that they would accept for the given benefit. The respondents were allowed to indicate a number between zero (the minimum) and 1,000 (entire population as maximum).

Describing the results, the paper's lead author, Dr Ann Van den Bruel, Director of the NIHR Oxford Diagnostic Evidence Cooperative and Senior Clinical Research Fellow in Oxford University's Nuffield Department of Primary Care Health Sciences, says:

"We found that people have highly variable views about how much overdetection they would accept in cancer screening, with up to seven percent indicating they would accept no overdetection at all and up to 14 percent who would accept overdetection in the entire population. Across the different cancer types, people would accept a median of 113 to 150 people to be overdetected to avoid one person dying of cancer as a result of screening."

"People accepted more overdetection when they perceived a higher benefit from cancer screening, so from a 10 percent mortality reduction to 50 percent mortality reduction, median acceptability increased significantly, with a maximum of 313 cases per 1,000 people screened

for breast cancer," she adds.

The study showed that acceptability of overdetection for bowel cancer screening was significantly lower than for breast cancer screening in women and prostate cancer screening in men. "This might have been caused by the inclusion of a one in 20 mortality risk of surgery in the description of bowel cancer treatment," Dr Van den Bruel explains.

Generally, people aged 50 or over accepted less overdetection, whereas people with a higher education accepted more. People who suffer from a chronic condition were more likely to accept overdetection in at least 80 percent of the screened population.

Dr Van den Bruel says: "How much overdetection people are willing to accept depends on the benefit that screening produces, and the cancer-specific harms of overdetection. Additionally, personal preference is influenced by age, education level and whether people have other illnesses. To allow people to make an informed choice that is aligned with their personal values, we as a research community should get better at measuring not only the benefits but also the harms associated with cancer screening, and properly convey that information when people are invited."

**More information:** *The BMJ*, www.bmj.com/cgi/doi/10.1136/bmj.h980

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