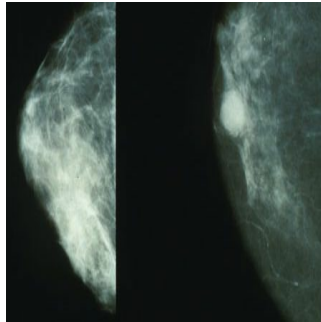## Even Expert Mammographers Can Miss Breast Cancer Cases

A recently published study in PLOS has found that breast cancers can be missed even by expert mammographers. Visual search experiments have shown that false negatives increase when targets are rare (low prevalence) but it is not known if low prevalence is a factor in real clinical circumstances. This study was designed to compare error rates in mammography under low prevalence, clinical conditions with rates under high prevalence, laboratory conditions.

The researchers inserted 50 positive and 50 negative cases into the normal workflow of the breast cancer screening service of an urban hospital over nine months. Six radiologists subsequently reviewed all 100 cases in a session where the prevalence of disease was 50 percent. In the clinical setting, participants missed 30 percent of the cancers. In the high prevalence setting, participants missed just 12 percent of the same cancers.

Under most circumstances, this low prevalence effect is probably adaptive. while this response to low prevalence appears to be strongly engrained in human visual search mechanisms, it may not be as adaptive in socially important, low prevalence tasks like medical screening. The authors write that while the results of any one study must be interpreted cautiously, these data are consistent with the conclusion that this behavioural response to low prevalence could be a substantial contributor to errors in breast cancer screening.

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