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Measuring the Yearly Mortality Reductions Due to a Cancer Screening Program: A Round-by-Round Approach

Summary statistics from cancer screening trials are of limited use for projecting the mortality reduction pattern expected from a sustained screening program. Earlier, to project the timing, duration, and magnitude of the reductions under any specified regimen, we had formulated a 3-parameter model, characterizing the impact of each round of screening, that can be fitted to year-by-year mortality data. Now, we extend it to (i) accommodate trials with >1 screening arm, (ii) combine information across trials with different regimens, (iii) account for age-specific regimens. We quantify how precisely the sustained asymptote in the mortality reduction curve can be measured.