Diagnostic value of systematic prostate biopsy methods in the investigation for prostate cancer: a systematic review
Centre for Reviews and Dissemination

CRD summary
This CRD-conducted review examined the value of systematic prostate biopsy schemes in the diagnosis of prostate cancer. Schemes that applied additional laterally directed cores showed a higher cancer yield. It remained to be demonstrated that extended biopsy schemes with a higher cancer yield lead to a survival benefit due to early cancer detection.

Objectives
To compare the diagnostic value and possible adverse effects of different systematic prostate biopsy schemes.

Review methods
A wide range of electronic databases were searched from 1980 to May 2004. Reference lists of included studies were screened, experts and manufacturers were contacted and urological journals were handsearched.

Eligible studies compared the cancer yield of a systematic prostate biopsy scheme (index test) with any systematic reference scheme in the same population of men. Studies that did not compare the tests in the same population, non-systematic biopsies and computer simulation studies were excluded. The primary measure of comparison between index test (in general the standard sextant scheme) and reference test was the relative positivity rate (RPR) of the index test. Where appropriate, data were pooled using a random-effects model.

Results of the review
Eighty-seven studies with 20,698 patients were analysed. The standard sextant scheme had a significantly lower cancer yield than most of the more extensive biopsy schemes. Adding laterally directed cores increased the yield significantly whereas additional transition zone cores did not. Schemes with 18 and more cores of the five-region pattern showed the highest cancer yield (RPR 1.48, 95% CI 1.32 to 1.66). However, the difference in the cancer yield of this scheme to the yield of the 12-core scheme from pattern "mid-lobar peripheral zone + lateral peripheral zone" (RPR 1.31, 95% CI 1.25 to 1.37) and the 10-core scheme of the five-region pattern (RPR 1.38, 95% CI 1.08 to 1.76) was not statistically significant. Some evidence suggested that adverse events for schemes up to 12 cores were similar to those of the sextant pattern but this remained unclear for more extended schemes.

Conclusions
The sextant biopsy scheme detected fewer cancers than most of the more extensive biopsy schemes. As the number of biopsy samples taken increased, the accuracy of cancer detection improved for most of the extended schemes. The addition of laterally directed cores from the lateral peripheral zone to the mid lobe peripheral zone increased the yield significantly.

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Record Status
This is a high quality systematic review involving CRD that meets the criteria for inclusion on DARE. As CRD reviews are of high quality this structured abstract presents a brief summary of the review methods, the results and conclusions.