Metaanalysis of the accuracy of rapid prescreening relative to full screening of pap smears.

Abstract:

BACKGROUND: Efficient quality assurance and improvement measures are essential ingredients in a well organized cytology-based program for cervical carcinoma screening. Various pap smear review procedures, aiming for optimization of accuracy, are described throughout the literature. Evaluation and synthesis of those methods are needed. In a previous study, we pooled data on the diagnostic quality of rapid reviewing (RR) of cervical smears initially reported as normal or unsatisfactory. We now focus on rapid prescreening (RPS) of unreported smears. METHODS: Six published studies on the accuracy of RPS relative to subsequent full screening were pooled using metaanalytic methods. Individual and pooled sensitivity, specificity, and predictive values were assessed using forest plots. Random effect pooling methods were used for interstudy heterogeneity. Variation in sensitivity according to influencing factors was explored by metaregression. RESULTS: The pooled average sensitivity of RPS was 64.9% (95% confidence interval [CI] 50.7-79.1%) for all abnormalities, 72.6% (95% CI 60.6-85.2%) for low-grade lesions or more severe, and 85.7% (95% CI 77.8-93.6%) for high-grade lesions or more severe. The pooled specificity was estimated at 96.8% (CI 95.8-97.8%). The sensitivity increased significantly with duration of screening and decreased with workload. Almost 3% of all abnormal slides were...
detected only by RPS (2.8%; CI 0.0-5.8%). This is comparable to the proportion of false-negative smears detectable by RR. CONCLUSIONS: Rapid prescreening has a high yield for severe dysplasia and shows diagnostic properties that support its use as a quality control procedure in cytologic laboratories. We showed previously that RR is superior to full reviewing of a 10% random sample of negative slides (10% FR). Because the yield of additional abnormalities found by RR and RPS is comparable, we expect RPS to be more efficient than 10% FR as well.