Box 3: HPV DNA testing
(Hybrid Capture / HC-II, Digene Corporation, Gaithersburg, Md.)

Use: Detects, by means of signal amplification and immunocapture of DNA and RNA hybrids, the 13 most frequent oncogenic HPV types in cervical samples. Cervical samples are obtained by cytobrush and placed in tubes containing transport medium and sent to the laboratory. Alternatively, the residual cell suspension used in the liquid-based cytology collection vial may be used for HPV DNA testing.

Promise: Clinical trials involving women with borderline cytologic abnormalities have shown that HPV DNA testing combined with liquid-based cytology detects 100% of high-grade cancer precursors and defers up to 60% of unnecessary colposcopies and biopsies. In a population-based screening mode, double testing (HPV testing and Pap smear) in women aged 35 years and older detected 90%-100% of high-grade cancer precursors, compared with 40%-78% detected by conventional cytology, and had a false-positive rate of only 5%. Conversely, the negative predictive value of a single double test is close to 100% for high-grade cancer precursors. Double testing should permit the institution of longer screening intervals, safely. The test is also cost effective and suitable for self-sampling, which may improve participation rates in screening programs.

Problems: The social and medical costs of identifying HPV-positive, cytology-negative women must be considered because of potential patient anxiety and clinical management problems. Indeed, it becomes problematic to identify such women if the timing of HPV testing and the clinical significance of the HPV latency period are not addressed appropriately. Consensus guidelines have yet to be developed for the management of women aged 35 years and older who are positive for high-risk HPV types but have negative cytology results.

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