Box 2: Computer-assisted automated cytology
(AutoPap Primary Screening System, TriPath Imaging Inc., Burlington, NC)

Use: A high-speed video camera is used to scan about 200 conventional Pap smears daily. Morphometric algorithms interpret images and indicate to the cytotechnologists which slides to screen manually. The slides least likely to contain abnormal cells (about 25% to 50%) are filed without the need for human review.

Promise: The device outperforms human review of manually screened negative smears (for quality control) by a factor of 5 to 7; in a primary screening mode of populations at low risk, it performs as well as humans with a sort rate (no review of smears needed) of up to 50%. It has the potential to alleviate shortages of qualified personnel in cytopathology.

Problems: The device is cumbersome, its pay-per-slide system may require additional administrative costs, service charges may be high, and its large throughput requires it to be located in high-volume laboratories. Approval for automated reading of thin-layer samples is pending.