Setting the Target for a Better Cervical Screening Test: Characteristics of a Cost-Effective Test for Cervical Neoplasia Screening


Carcinoma of the cervix is one of the most common malignant conditions in women in many parts of the world. Papanicolaou smears detect preinvasive and early invasive disease; they have led to significant reductions in its incidence and associated mortality in many countries. In the United States, the incidence of and mortality rate associated with cervical cancer have declined steadily over the past two decades. No such reductions have occurred in countries where cytologic screening is not widely available.

Cytologic screening, although clearly beneficial, can be performed more cost-effectively by reducing the high levels of false-negative results of conventional smears. In the study by Myers et al. (2000), a comprehensive Markov model of the natural history of cervical cancer was developed to identify circumstances in which new technologies to reduce false-negative results could be cost-effective. The conclusion reached was that policies or technologies that increased sensitivity of cervical cytologic screening increased overall costs, even if the cost of the technology was identical to that of conventional Papanicolaou smears. Relatively high prevalence of low-grade lesions caused the increase in cost, which was magnified at frequent screening intervals. Efficient cervical cancer screening required methods with greater ability to detect lesions that were most likely to become cancerous.

These findings laid the foundation for evaluating new technologies to improve cytology-based cervical cancer screening, and were integral to the debate on the appropriate interval between routine cervical cancer screens for women with normal cytology findings. Guidelines that had previously recommended annual screening were revised to allow for longer intervals of up to three years.

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