Cost-Effectiveness of Human Papillomavirus Vaccination and Cervical Cancer Screening in Women Older Than 30 Years in the United States

What is the problem and what is known about it so far?
Cervical cancer is cancer of the cervix (the lower part of the uterus or womb). Infection with human papillomavirus (HPV), a common sexually transmitted virus, is a cause of cervical cancer. People can get HPV from intimate sexual contact with a person already infected with HPV. Many sexually active women get infected with HPV, but the risk for cervical cancer in the United States is low.

Papanicolaou (Pap) smears are used to screen for cervical cancer. “Screening for cancer” means looking for cancer before a person has symptoms. To perform a Pap smear, doctors use a swab during an internal examination of the vagina to take a sample of cells from the cervix to look at under a microscope. Having a Pap smear every 1 to 3 years helps prevent cervical cancer by finding it at early, treatable stages. It is also possible to test for HPV, and experts are trying to determine the best way to combine HPV and Pap tests in cervical cancer screening. Some doctors test women for HPV only if the Pap smear shows abnormal cells that are not clearly cancerous. Other doctors use both tests together for all women older than 30 years, because cervical cancer is very rare before age 30 years.

A vaccine to prevent infection with HPV types 16 and 18, which are 2 types most commonly linked to cervical cancer, is recommended for girls and young women aged 11 to 26 years. However, many women have already been exposed to HPV by this age. Because the vaccine does not treat HPV, the value of the vaccine in older women is questionable. Still, the vaccine makers are trying to get the U.S. Food and Drug Administration to approve the vaccine for older women.

Why did the researchers do this particular study?
To see whether the costs of giving the HPV vaccine to women older than 30 years are likely to be worth the benefits.

Who was studied?
The researchers did not study actual patients. They used computer models to simulate what would happen to a hypothetical group of women in the United States, aged 35 to 45 years.

How was the study done?
The researchers used information from studies to estimate what the associated costs and health benefits would be if women aged 35 to 45 years received HPV vaccination in addition to screening with Pap smears and HPV testing.

What did the researchers find?
Adding HPV vaccination to regular cervical cancer screening for women 35 to 45 years of age costs well over $116,950 to $381,590 per quality-adjusted life-year saved. This amount is more than persons in the United States typically consider to be good value for health care.

What were the limitations of the study?
This study was conducted by using a computer model and was based on many assumptions that reflect the uncertainty in currently available information.

What are the implications of the study?
Women older than 30 years should continue to receive recommended cervical cancer screening with Pap smears and HPV testing. The benefits of HPV vaccination for this age group are small, and the value is less than what is commonly accepted for health care interventions in the United States.