

ministries, with financing from the Bill and Melinda Gates Foundation through the Alliance for Cervical Cancer Prevention.

Midwives are being trained to perform a gynaecological examination and screen women with an experimental method known as Visual Inspection with Acetic Acid (VIA), that is, vinegar. Application of the vinegar causes suspicious lesions to appear white with clear borders.

If such a lesion shows up, a physician performs a second VIA test under magnification. If the existence of abnormal cells is confirmed, the women are offered a biopsy and immediate treatment with cryotherapy, the freezing of the lesions.

A research study conducted on women aged between 25 and 55 years in Zimbabwe and published in *The Lancet* (1999;353:869-73) showed that the VIA screening method detected "about 77% of all abnormal tissue, about the same rate achieved with Pap smears according to Silvia Robles, programme coordinator for noncommunicable diseases at the Pan American Health Organization (PAHO) in Washington. Robles told the *Bulletin* the number of false positives is somewhat higher than with a Pap smear, which has a relatively low sensitivity. She added that a false positive is better than a false negative in these cases.

Robles said the programme in Peru is designed to determine if this screening and treatment method will work under "real life conditions" in developing countries, where transportation is difficult, money for expensive equipment is scarce, and there are frequent changes of government.

More than 160 community leaders and government workers have been trained to teach women about cervical cancer and encourage them to participate in the programme. The equipment used is portable and the health workers can take it by river to women who live far from the nearest health post.

Since the women can be treated the same day they are screened, it is expected that more women will get treatment than would have if they had to return to the health post to learn the results of a Pap smear. Marie Andrée Diouf, Director of PAHO in Peru, said the programme, which began in 2000, is already a

success. "It is saving many women's lives," she said.

In Geneva Sonia Pagliusi of the WHO Initiative for Vaccine Research told the *Bulletin* she considered VIA to be "a new method still under evaluation — it's in the research stage in India, comparing different methodologies. It's promising but not yet proven. WHO has no formal recommendation to use it." ■

Terri Shaw, *Lima*

Is breast cancer linked to smoking?

Women who begin smoking during the five years after their first menstruation were 70% more likely to develop breast cancer than non-smokers, according to a study by Canadian researchers (*Lancet* 2002;360:1044-9) which hit headlines around the world.

Derek Yach, WHO's Executive Director of Noncommunicable Diseases and Mental Health, called the Canadian study "important", but stressed that additional work is needed to confirm a definitive link between smoking and breast cancer. "If [the link] proves to be real," says Yach, "the breast cancer issue would be additional motivation to quit smoking."

While the link between smoking and maladies such as heart disease, stroke and lung cancer is well proven, relating breast cancer to tobacco has been more elusive. Some studies have suggested a positive link, others found no relationship, and a few have suggested that smoking has a protective effect, Yach said.

In the current study, a team of researchers led by epidemiologist Pierre Band, now at Health Canada, evaluated the risk on the basis of the biology and physiology of human breast development. Breast tissue only fully develops after a full-term pregnancy. Until then, the immature cells are more susceptible to environmental carcinogens, such as those in cigarette smoke, he argued.

The team analysed the responses to a health questionnaire answered by more than 2000 women living in British Columbia, about half of whom had been diagnosed with breast cancer. The researchers found that women who began smoking in the five years after their first period were 1.7 times more likely to develop premenopausal breast cancer than non-smokers.

For women who smoked heavily but had never been pregnant, and thus whose breasts never fully matured, the risk of pre-menopausal breast cancer jumped more than sevenfold, this study suggested, no matter when the women took up the habit.

Breast tissue before the first menstruation may be even more vulnerable, according to studies of breast cancer among Japanese women who survived atomic bomb blasts. Too few women in the Canadian study began smoking at very young ages for the researchers to evaluate the risk, "but it is possible that smoking before the first occurrence of menstruation would even be more detrimental," Band says.

The study also found evidence of the controversial protective effect that tobacco appears to have *against* breast cancer in women past their reproductive years. Women who began smoking after a first full-term pregnancy (so their breast tissue had matured) and had gained weight since their teen years halved their risk of developing *post*-menopausal breast cancer compared to women who never smoked but had gained weight. *Post*-menopausal breast cancer is associated with obesity, and scientists think the biochemical reaction that converts the hormone androgen to estrogen, the female hormone associated with breast cancer, occurs in fat tissue. Smoking inhibits the reaction, Band explains.

The findings are worrying in light of recent statistics that indicate smoking among young people and women is on the rise. With information from 43 countries to date, the Global Youth Tobacco Survey estimates that 20% of children between 13 and 15 years of age smoke worldwide, while in some countries the figure jumps to more than 60%. Nearly a quarter of the young smokers lit up their first cigarette before age 10. And in some countries, including Denmark, Germany and the United States, young (14-19 year-old) women who smoke outnumber the young men who do.

The Tobacco Free Initiative programme at WHO reports that rates of breast cancer have been "eerily tracking" the increase in female smoking during the past several decades. According to the International Agency for Research on Cancer, more than 1 million women worldwide were diagnosed with breast cancer in 2000. About half of those cases occurred in less developed countries. ■

Charlene Crabb, *Paris*