

## Cervical screening: lessons from the Australian experience

The early detection of cervical cancer is important. In Hong Kong, cervical cancer is the fourth most common cancer in women and will develop in one in 72 women, although only about one third of women who have the cancer will die from it.<sup>1</sup> An effective screening method is currently available in Hong Kong and could prevent 90% of invasive cancers, and much effort goes into the follow-up of women whose smears show abnormalities.<sup>2</sup> We do not know how effective these efforts are, but we have good reason to believe there is room for improvement. In this issue, Lee and Wong<sup>3</sup> present data that show the urgency of the local problem; after all, if any other preventable infectious disease causes so many deaths, it is regarded as a public health emergency and huge efforts are exerted to deal with the problem. Chang<sup>4</sup> reviews the history of cervical screening and suggests ways to ensure that laboratories perform their task better. From the perspective of primary care physicians and their patients who use laboratories and rely on the results, this paper is disturbing. We are used to taking pathology results on trust and not checking quality, but why do tests if they are not properly assessed? Yeoh et al<sup>5</sup> show that quality improves with newer technology—in this case, a combination of the endocervical brush and a liquid-based slide preparation method. In their study, an extra HK\$20 was charged per slide, but the price would be higher in routine practice.

In 1987, Australia looked into why the incidence of cervical cancer was not diminishing, despite great effort and expense. A national committee that included experts from all fields was established and commissioned studies to evaluate the situation. The report<sup>6</sup> showed that it was necessary to understand the screening pathway and delineated problems at each of the following steps:

- (1) Recruitment of appropriate women;
- (2) Availability of trained smear-takers;
- (3) Availability of high-quality pathology services;
- (4) Presence of appropriate skilled referral clinics to assess abnormalities;
- (5) Successful treatment of the abnormalities found;
- (6) Adequate feedback of results to women; and
- (7) Recall of women at appropriate intervals.

The committee report stimulated reform. The varied policies stipulating who should have smears and how frequently were replaced by a national policy of screening every 2 years, so that women were not confused by differing recommendations.<sup>7</sup> Although the scientific evidence suggested a 3-year frequency, many doctors had been recommending annual smears. It was recognised that a sudden change to screening every 3 years might not be politically sustainable. A further argument against a 3-year interval was that the low quality of some laboratory services warranted a higher frequency of testing to safeguard against poor sensitivity and false negative results. The target group of women was defined as being those aged between 18 and 70 years who had ever been sexually active, although the low risk of cancer among young women could have indicated an older starting age for testing. Accordingly, the focus of advertising campaigns was changed from targeting young women to targeting older women (who are more likely to get the disease) as well as those in the underscreened and higher-risk social groups.

To ensure that the standards of a screening programme remain high, every step of the pathway must have appropriate training and continuing quality assurance.<sup>8</sup> Professional standards in Australia were established to regulate taking smears, interpreting smears, performing laboratory processes, and reporting test results. Educational standards were also developed to improve the quality of smear-takers, cytotechnicians, and cytopathologists. Formal educational programmes were established to improve the more casual approaches, which had previously allowed many doctors to graduate and practise without ever having learned how to take a cervical smear, and which had enabled general pathologists to analyse smears without having received any previous specific cytopathology training. Quality assurance programmes were either developed or extended to regulate smear-taking, smear interpretation, and laboratory standards as a whole. In addition, the Australian College of Gynaecologists was requested to establish a quality assurance programme in colposcopy and consequent treatment techniques.

Most importantly, feedback systems were established to 'close the loop' for all parties concerned. Women were to be informed about their results—both abnormal and normal—since one major cause of invasive cancer is the failure to follow up abnormal smears. Reminder programmes informed women when they should return for subsequent screening. Smear-takers are given aggregate results by the laboratories to which they send their smears, so that they are made aware of their standards. Meanwhile, registers informed laboratories of their spectrum of diagnoses and regular blind assessments of smear specimens were undertaken. Histological reports were correlated with cytological reports and results were fed back, while comparative information was supplied to each laboratory. Such feedback systems encourage experience that is built on evidence rather than on anecdote.

These new policies were gradually introduced, and an interim evaluation in 1995 found a steady progression towards screening at 2-year intervals, although recruiting older and underscreened women was still difficult.<sup>9</sup> Operational research was stimulated by the report. Medley and Mitchell<sup>10</sup> followed up women who did not have endocervical cells in their smears, and found that cancer was less likely to develop in these women than in those whose smears contained endocervical cells. While the presence of such cells is a useful marker for overall slide quality, their absence has no specific implications for an individual patient.

Kavanagh et al<sup>11</sup> found that women younger than 24 years had a 1 in 13 chance of being referred for a colposcopic examination after a smear test, although the incidence of cancer in that age-group is small. The risk of referral drops with age: 1 in 20 and 1 in 39 for the age-groups of 35 to 44 years and 55 to 64 years, respectively. The incidence of serious disease subsequently developing rises progressively with age, however. One death was expected for every 50 000 colposcopic examinations performed among women younger than 24 years, one for every 273 for those aged 35 to 44 years, and one for every 38 among those aged 55 to 64 years.<sup>11</sup> Clearly, there is a high incidence of minor abnormalities and a very low incidence of important ones, especially among young women. Older women have low incidences of minor abnormalities but more serious ones. Consequently, taking a smear from an older woman has a much greater chance of doing good, and less of a chance of obtaining and following up a false positive result.

Taking smears from very low-risk women leads to much extra work. This group includes those who

have had a smear within the previous year. Taking smears too often not only may cause harm by giving unnecessary referrals, creating emotional stress, and even performing unnecessary operations, but also swamps the follow-up services with work that does not need to be done. In addition, smears are taken mainly by health care workers in the private sector and initial follow-up occurs at the expense of the women involved; the later steps of the referral pathway, however, are more likely to be paid by the public sector. Therefore, what happens at the private front line is a legitimate concern for us all.

Implementing the Australian screening programme required a small amount of government leadership and the allocation of some government funds, although the medical profession and their organisations (such as the Colleges of Family Physicians, Gynaecologists, and Pathologists) did most of the work. Much research on behaviour change has also been necessary. Can we do the same in Hong Kong, to ensure that we also have a coordinated policy on cervical screening? Government health centres in Hong Kong have a policy of taking smear specimens from ages of 30 to 64 years at 5-year intervals. This policy does not seem to be accepted by most doctors. A recent community telephone survey by Chang and Hazlett<sup>12</sup> showed that 65% of women who attend for cervical smear screening, have smears taken annually. The Hong Kong public need an agreed policy that specifies who should attend screening, recommends a 3- to 5-year interval, ensures the availability of well-trained smear-taking services, assures the quality of smear interpretation, and provides feedback programmes to maintain standards.

Formulating such a policy has been a worldwide problem, and different countries have responded in different ways. In this issue, Cuzick and Sasieni<sup>13</sup> describe the situation in the United Kingdom, where improved screening has produced clear reductions in mortality and morbidity from invasive cancer. Olesen<sup>14</sup> gives an overview of the approaches being taken by various European countries. These reports support the tantalising prospect that if quality can be raised, women can have fewer smears, which start later in life, have longer intervals, and finish earlier. It may be much easier to persuade an increased proportion of women to participate in such schedules than in annual ones, and the total effort and cost may be the same, while achieving a much better result.

Because of different cultures and organisations of health care, however, we cannot simply transplant screening systems from elsewhere: they have to be

adapted to local conditions. We need to create behaviour change among the Hong Kong population and medical practitioners. Leadership is necessary to accomplish this change. In a mixed medical economy like the one that exists in Hong Kong, we need a steering group from many backgrounds and which preferably includes consumer representation; the latter can cut through the professional assumptions and boundaries that often prevent change. A register could be central to improvement: its main role would be to record Papanicolaou smear results and ensure that reminders are sent to women after 3 years. Secondary roles would include monitoring the follow-up of abnormal results, performing quality-reviews of laboratory results, ensuring feedback of the eventual diagnoses from smear results, and measuring treatment effectiveness. Only through such information can we develop and maintain the most appropriate programme for this community.

A good cervical screening programme reduces the burden of disease substantially. In contrast, the current screening practice of Hong Kong is doing little for the disease, while diverting public money from other more effective uses. Implementing screening programmes effectively and efficiently requires an obsession with quality on a long-term basis.<sup>15</sup> We already pay for follow-up and treatment of the advanced cervical disease. This burden could be substantially prevented through investing effort in properly targeted screening. An economic analysis would most likely show that effective reorganisation could produce much better outcomes for little extra cost.

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