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Performance of nurses in the Department of Health as service providers for a cervical screening programme

衛生署母嬰健康院護士在一項子宮頸普查計劃中的服務表現

A territory-wide cervical screening programme was launched in Hong Kong in March 2004. Since 2002, 160 nurses from the Department of Health's Maternal and Child Health Centres have completed the training necessary to carry out the screening procedures. A clinical audit of their performance was carried out between 2002 and 2004. A customer satisfaction survey revealed that 94% of respondents agreed or strongly agreed that they were satisfied with the cervical smear procedure performed by nurses. Since January 2003, all routine cervical screening tests at Maternal and Child Health Centres have been performed by nurses. The mean time required to complete a test is 7 minutes. The mean unsatisfactory smear rate for the year 2003 was 1.3%, well below the benchmark of 5% set by the Working Party on Quality Assurance of the Cervical Screening Task Force. The results of this survey confirm that nurses at Maternal and Child Health Centres are highly effective and efficient at taking smears and that this is well accepted by clients.

2004年3月，一個全港性的子宮頸普查計劃正式展開。為了推行計劃，由2002年起，衛生署屬下母嬰健康院派出160位護士接受檢驗訓練，並在2002至2004年接受臨床評核。據一個顧客滿意程度調查的結果顯示，94%的受訪者贊成或非常贊成護士負責宮頸塗片檢驗的服務表現令人滿意。2003年1月起，所有在母嬰健康院進行的宮頸細胞例行檢驗均由護士負責，檢驗平均需時7分鐘，塗片不佳的平均比率為1.3%，遠低於子宮頸普查計劃質量保證工作小組所訂的5%基準。本調查結果反映母嬰健康院的護士能夠提供準確及有效率的檢驗服務，而這個計劃亦廣為顧客接受。

Key words:
Cervix neoplasms;
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Task performance and analysis

關鍵詞：
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Introduction

Cervical cancer is the fifth most common cancer and the eighth leading cause of cancer deaths among women in Hong Kong.[1] In 2001, there were 444 new cases of invasive cervical cancer in Hong Kong, with 128 women died of this disease.[1] Mortality is known to be reduced significantly in countries with an effective cervical cancer screening programme.[2] The age-standardised incidence rate of cervical cancer in Hong Kong was 9.7 per 100 000 women, comparatively higher than Finland's 3.8 per 100 000 women and England's 7.5 per 100 000 women.[2] This may be due to Hong Kong's relatively low coverage rate of cervical screening for only 40% to 50% of women,[2-4] compared with 70% to 85% in

countries with population-based screening programmes.[3,4]

In December 2001, the Cervical Screening Task Force was established to plan, organise, and implement a territory-wide cervical screening programme (CSP) with integrated efforts from the private and public sectors. The targeted population was sexually active women aged 25 to 64 years. It aimed to increase the coverage rate of cervical screening to 60% or above in 3 years. In order to achieve this, the number of smears taken in Maternal and Child Health Centres (MCHCs) was estimated to increase from 90 000 to over 200 000 annually.

Because of the limited manpower in the Family Health Service (FHS) and the cost-effectiveness of service provision, it was decided that registered nurses would be trained as service providers for the CSP. A training programme was then organised for a total of 160 registered nurses in the MCHCs.

The training programme

The training course consisted of lectures, workshops, and clinical attachment. After attending the course, each trainee was required to pass a written test to demonstrate an adequate knowledge of cervical cancer and CSP; to achieve 40 satisfactory smears during the three to four clinical attachment sessions; and to obtain satisfactory results in the customer satisfaction survey.

The one-day lecture

Anatomy, physiology, and pathology of the cervix, cervical cancer, and cervical cancer screening programmes were the subjects of a series of lectures designed to enable a full understanding of the CSP. Speakers were gynae-oncologists, pathologists, and public health doctors.

The half-day workshop

The workshop allowed trainees to practise cervical cell sampling with gynaecological models using both liquid-based cytology tests and glass slides. Interviewing and communication skills were reinforced through discussion and role play using different clinical scenarios. All theoretical scenarios of patient encounters were incorporated in the 'Cervical Smear-taking Manual' compiled by the FHS of the Department of Health (DH). A modified version has been produced by the Disease Prevention and Control Division of the DH and distributed to interested parties.[7] Trainees completed a multiple-choice questionnaire at the end of the workshop. The questions focused on the theory of cervical cancer screening and the practical management of different clinical scenarios. The mean score of the 160 trainees was 92%. A discussion of the questions and management options was conducted at the end of the workshop.

Table 1. Results of completed customer satisfaction questionnaires (n=1595)

Question	% of agree/ strongly agree
1. The nurse told me what to expect during the procedure	96
2. The nurse took time to explain the test to me	90
3. The nurse told me when I should come back for the next visit	93
4. The nurse understood my feelings	88
5. I was embarrassed by the procedure carried out	17
6. I experienced pain while the procedure was being carried out	17
7. I was confident in the procedure undertaken by the nurse	91
8. I was satisfied with the procedure carried out	94

The clinical attachment

Ten MCHC doctors who had received postgraduate hospital gynaecology training and had extensive experience in counselling clients with abnormal cervical smear results were identified as clinical supervisors. After attending the lectures and the workshop, trainees were allowed to perform cervical cell sampling under supervision during clinical attachment. Each trainee was required to keep a log of all smears taken and to accomplish at least 40 satisfactory smears during the supervised period. The mean satisfactory smear rate was 94.4%.

The customer satisfaction survey

Customer survey questionnaires were randomly distributed to 10 clients who had smear tests taken by each trainee. The questionnaire contained eight questions that aimed to assess the clients' opinion of nurses' professional and communication skills, and clients' experience of and satisfaction with the smear taking procedure. They were required to choose one option from a scale of five, ranging from strongly agree to strongly disagree. A total of 1600 questionnaires were collected: five were incomplete and excluded from final analysis. Clients were highly satisfied with the nurses as smear-takers: 91% of them had confidence in the procedure undertaken by the nurses, and 94% strongly agreed/agreed that they were satisfied with the procedure. One sixth of clients (17%) felt

Table 2. Comparison of performances of smear-taking by doctors and nurses in Family Health Service*

Months	Total No. of cervical smears done in all Maternal and Child Health Centres (2002/2003)	No. of unsatisfactory smears (2002/2003)	% of unsatisfactory smear (2002/2003)	P value†
Jan-Mar	17 507/21 001	415/356	2.4/1.7	<0.001
Apr-Jun	25 095/17 196	671/249	2.7/1.4	<0.001
Jul-Sep	21 903/21 348	620/221	2.8/1.0	<0.001
Oct-Dec	23 511/23 528	535/217	2.3/0.9	<0.001
Total	**88 016/83 073**	**2241/1043**	**2.5/1.3**	**<0.001**

* In 2002, doctors took most of the smears and spatula was used in collecting cells; in 2003, nurses took the majority of smears and cervix brush was used

† Chi squared test, dF=1

Table 3. Unsatisfactory smear rates in all the Maternal and Child Health Centres (MCHCs), Jan 2003 to Sep 2004

Period	Total No. of cervical smears done in all MCHCs	No. of unsatisfactory smears	% of unsatisfactory smear
Jan-Mar 2003	21 001	356	1.7
Apr-Jun 2003	17 196	249	1.4
Jul-Sep 2003	21 348	221	1.0
Oct-Dec 2003	23 528	217	0.9
Jan-Mar 2004	22 124	135	0.6
Apr-Jun 2004	22 228	118	0.5
Jul-Sep 2004	22 716	75	0.3

embarrassed and the same percentage of clients reported pain during the procedure (Table 1). These feelings were related to the nature of the cervical screening test and were difficult to eliminate.

All 160 trainees completed the training programme and have demonstrated satisfactory practical skills and efficiency. They were all qualified as service providers for the CSP.

Performance of nurses as service providers for a cervical screening programme

Unsatisfactory smear rate

All cervical smears were processed by the laboratories of the Public Health Laboratory Services Branch of the DH, which also compiled MCHC-based monthly statistics of cervical smear results including the unsatisfactory smear rate. Cell samples were interpreted based on strict criteria (Bethesda System 2001). Samples that failed to satisfy these criteria were considered unsatisfactory. The smear-taking technique, instruments used to collect cervical cells, and laboratory processing all contributed to the unsatisfactory smear rate. A benchmark of 5% unsatisfactory smears was set for the CSP in Hong Kong, by the Working Party on Quality Assurance of the Cervical Screening Task Force. This is in line with cervical cancer screening programmes in the United Kingdom and Australia.

In July 2002, qualified nurses started to take routine cervical smears in the MCHCs, although the majority were still done by doctors. Since January 2003, all routine cervical smear tests in the MCHCs have been taken by nurses. Doctors are principally responsible for clients who require a routine postnatal smear, intrauterine contraceptive device check-up, a repeat smear because of previous unsatisfactory sample, or follow-up smear when there is a history of cervical intra-neoplasia. Doctors also offer clinical support for nurses if they have difficulty collecting a cell sample. Smears taken by doctors form a very small proportion of the smear tests done in the FHS.

Laboratory processing and the instruments used for cell collection are critical factors that affect the unsatisfactory smear rate. Liquid-based cytology is a reliable collecting method in cervical screening test which results in a lower unsatisfactory smear rate because most of the cells collected by the cervix brush can be transferred and stored in a bottle of special fluid.[8,9] The whole bottle is then transported to a laboratory for processing. However, the use of spatula to collect cells can transfer only a small fraction of the cells to the glass slide. In 2003, MCHCs started to change from using glass slides for cervical smear tests to liquid-based cytology. In the third quarter of the year, a large number of centres have been using this new sampling method.

The unsatisfactory smear rates in 2002 was 2.5% when doctors took most smears and used conventional glass slide as the major sampling methods. The percentage significantly reduced to 1.3% in 2003

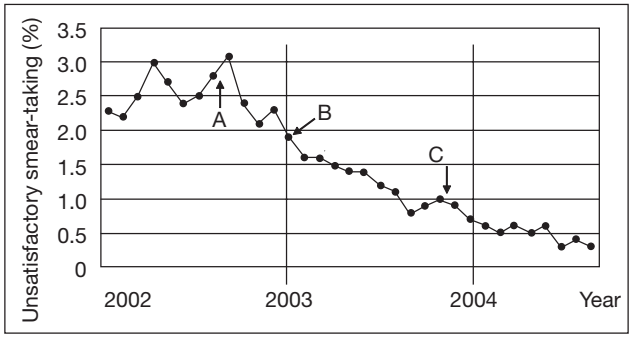

Fig. Performance of smear-taking in Maternal and Child Health Centres (MCHCs)
A: Since July 2002, trained nurses started to participate in taking routine cervical smear in MCHCs
B: Since January 2003, all the routine cervical smears in MCHCs have been taken by trained nurses
C: In the third quarter of 2003, some MCHCs have switched from glass slides to liquid-based cytology in collecting cells

($P<0.001$) when the use of liquid-based cytology began and qualified nurses took the majority of smears in all MCHCs (Table 2). Further improvement in line with increased practical experience was evident in 2004: the unsatisfactory smear rate between July and September 2004 was 0.3% (Table 3, Fig).

Efficiency

With existing FHS manpower, each test was required to be completed in 10 minutes in order to cope with the increased work. In September 2003, the time taken to complete a cervical smear test by eight randomly selected nurses from four MCHCs was audited by a trainer who had attended one service session conducted by the nurses under assessment. The time required to complete a test, which included history taking, explanation, and the smear procedure, ranged from 6 to 13 minutes, with a mean of 7 minutes. More time was required by some clients if an underlying menstrual problem was identified during history taking.

Conclusion

The performance of specially trained MCHC nurses as service providers for CSP is effective and efficient. In MCHCs where nurses are the main smear-takers, the unsatisfactory smear rate has continued to reduce. Most clients accept a CSP that is nurse-run.

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