

Cervical cancer screening performed by a nurse

Evaluation in family practice

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OBJECTIVE To determine whether a nurse practitioner could collect adequate Papanicolaou smear samples from the transformation zone of the cervix.

DESIGN A retrospective, descriptive study.

SETTING The Bella Coola Medical Clinic, a primary care facility located in the isolated, small village of Bella Coola, BC.

PARTICIPANTS All women who presented for Pap smears between July 1993 and June 1994.

MAIN OUTCOME MEASURES Endocervical or metaplastic cells in smear samples.

RESULTS All Pap smears performed in the Bella Coola Medical Clinic over 1 year by either the nurse or a member of the physician group (which includes family practice residents) were reviewed. Between July 1, 1993, and June 30, 1994, 149 Pap smears were done, 55 by the nurse and 94 by the physicians. All smears collected by the nurse practitioner showed endocervical or metaplastic cells. More than 90% of physician samples showed endocervical or metaplastic cells.

CONCLUSIONS A Canadian nurse practitioner can be trained to collect adequate Pap smears.

OBJECTIF Déterminer la capacité d'une infirmière clinicienne à procéder adéquatement aux prélèvements dans la zone transitionnelle du col utérin pour fins de cytologie cervicovaginale.

CONCEPTION Étude descriptive rétrospective.

CONTEXTE La clinique médicale Bella Coola, établissement de soins de première ligne installé dans le petit village isolé de Bella Coola, C.-B.

PARTICIPANTS Toutes les femmes qui ont consulté pour obtenir une cytologie cervicovaginale entre juillet 1993 et juin 1994.

PRINCIPALES MESURES DES RÉSULTATS Présence de cellules endocervicales ou métaplasiques dans le frottis cytologique.

RÉSULTATS Analyse de toutes les cytologies effectuées à la clinique médicale Bella Coola sur une période de 12 mois soit par l'infirmière, soit par un membre du groupe de médecins (y compris des résidents de médecine familiale). Entre le 1^{er} juillet 1993 et le 30 juin 1994, 149 prélèvements ont été effectués, soit 55 par l'infirmière et 94 par les médecins. Dans tous les prélèvements effectués par l'infirmière clinicienne, on a noté la présence de cellules endocervicales ou métaplasiques. Quant aux prélèvements effectués par les médecins, plus de 90 % contenaient des cellules endocervicales ou métaplasiques.

CONCLUSIONS Il est possible de former une infirmière clinicienne canadienne apte à procéder adéquatement aux prélèvements pour cytologie cervicovaginale.

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RESEARCH

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DESPITE THE FACT THAT THE PROVINCE OF British Columbia has a well organized, highly effective, and highly respected cervical screening program, women are still dying of invasive cervical carcinoma.¹⁻⁴ Studies have shown that an important cause of failure to detect carcinoma in situ and preclinical invasive cervical carcinoma in this group of patients is lack of compliance with current Papanicolaou smear screening recommendations.

Commonly cited reasons for not participating in a Pap smear program include embarrassment (particularly with male physicians), fear of discomfort or indignity, fear of cancer, fear of the result, fatalism, lack of time, forgetting, belief that Pap smears are unnecessary after menopause, ignorance of the test, cultural factors (eg, traditional Native* health beliefs), lack of screening clinics, physician attitude, disorganization, and governmental barriers.^{4,5}

Our office staff have observed that many female patients (both Native and non-Native) attending the Bella Coola Medical Clinic prefer to have female physicians do their Pap smears. Because of the isolation of this community, the Bella Coola Medical Clinic is not always able to employ female physicians. When a female physician is on staff, a large part of her day can be spent taking Pap smears. If visiting female physicians stay only a short time, women often miss getting their Pap smears done because they are unaware a female physician is present or because they are unable to book an appointment. The result is unnecessary poor compliance with recommended frequency of screening for cervical cancer.

The Bella Coola Medical Clinic has employed a nurse practitioner (P.L.) since January 1993. Because taking Pap smears is basically a simple technical skill that should be easily taught, we decided to expand the role of our nurse practitioner to include taking Pap smears. A review of the literature revealed a

*Native is used throughout this article to refer to the indigenous and aboriginal inhabitants of Canada and their descendants.

relative lack of published outcome studies on specific activities performed by Canadian nurse practitioners and no data on adequacy of Pap smear samples collected by Canadian nurse practitioners. The purpose of this study was to determine whether our nurse practitioner collected adequate Pap smears. We compared her results with those of physicians working at the Bella Coola Medical Clinic.

METHODS

Setting

The Bella Coola Medical Clinic is a primary care facility in the small village of Bella Coola. This isolated village is located on the central coast of northwestern British Columbia. There are no other family physician offices in the Bella Coola Valley, and the nearest medical facilities are in Williams Lake, some 480 km east of Bella Coola and accessed by a partially paved road. Vancouver is approximately 425 km south and accessed only by air.

The Bella Coola Medical Clinic is staffed and financed by the United Church Health Services. The United Church Health Services, in turn, operates from a global budget it negotiates from, and is funded by, British Columbia's Ministry of Health.

Three full-time salaried physicians and one nurse practitioner provide primary care to the community. Locum physicians fill in when one of the full-time physicians is away on holiday (4 or 5 weeks a year) or away doing postgraduate medical updates (2 to 5 weeks yearly). Most months of the year, a family practice resident from the University of British Columbia works at this clinic for 1 or 2 months at a time.

Nurse practitioner's qualifications and job description

The nurse in our clinic attained a Bachelor of Nursing Science degree from Queen's University in Kingston, Ont, and graduated from the University of Alberta's 7-month Nurse Practitioner Program. She had had extensive experience in remote outpost stations throughout

Canada's north and had done obstetric nursing and rural hospital general nursing. She has been employed as a nurse practitioner at the Bella Coola Medical Clinic since January 1993.

The nurse was responsible for delivery of public health services (approximately 10 hours weekly), for a community health promotion program (approximately 12 hours weekly), and for nurse practitioner services (approximately 16 hours weekly).

Teaching Pap smear technique was straightforward. Initial theoretical education was followed by observation, questioning, and trial and error practice. The nurse was trained to collect swabs for sexually transmitted diseases if indicated during the examination itself and to perform bimanual examination. All of this was done with close contact and supervision of the physicians in the office, who were available for immediate consultation if necessary (eg, for abnormal findings on pelvic or breast examination). Prescriptions for treatment (eg, for treatment of sexually transmitted diseases or oral contraceptives) required a physician's signature and also involved a brief referral.

Study design

This was a retrospective, descriptive study of all Pap smears performed in the clinic over 1 year by either the nurse or a member of the physician group (which included family practice residents).

The study population consisted of all women who presented for Pap smears during the study period (July 1993 to June 1994). There was no official call-back system for low-risk women in the Bella Coola Valley, but they were encouraged to have routine Pap smears as outlined by the 1991 Canadian Task Force Report.⁶ High-risk patients who had had previous cytologic abnormalities were flagged by the computer at the central screening agency and contacted by their physicians to encourage them to come for follow-up visits.

Patients effectively assigned themselves to one of the two groups when they made their appointments. They were given free choice as to which

practitioner they would like to see (normal clinic policy). If there was no strong preference and they were to be seen mainly for a Pap smear, the medical receptionist suggested that they be seen by the nurse.

All smears collected were sent to the British Columbia Cancer Agency's cytology laboratory, which examines all smear samples from British Columbia, the Yukon, and the Northwest Territories, in total about 650 000 samples yearly. The screening program's operation is described in detail elsewhere.¹ The medical receptionist in our office processed the Pap smears as if they had been taken by the physician with whom the nurse practitioner was working that day. The cytopathologist reading a Pap smear collected by the nurse practitioner would have assumed it had been taken by a physician: that is, the cytopathologist was blinded during this initial evaluation of Pap smear adequacy.

An adequate Pap smear should contain a good sample of squamous epithelial cells from the ectocervix together with groups of endocervical or squamous metaplastic cells, which originate from the transformation zone of the cervix, the area in which preneoplastic changes are most likely to occur. A smear that does not contain endocervical or squamous metaplastic cells is considered to be acceptable but suboptimal and is so reported. In addition, a few smears are classified as inadequate because they contain too few cells for interpretation or because the cells are obscured by inflammatory exudate or blood.

As part of routine screening procedure, all of the slides were assessed using these criteria; in addition, a random sample of slides from both groups were reexamined by a cytopathologist (G.A.) to confirm the adequacy of these smears as judged by the cellularity and the types and distribution of the cells. The cytopathologist was aware of which smears were taken by the nurse practitioner at the time of this review: that is, he was not blinded. The study also assessed the two groups (physician versus nurse practitioner) on the basis of age, cytologic abnormalities, and Native status.

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RESULTS

During the study period, a total of 149 Pap smears were performed at the Bella Coola Medical Clinic, 55 by the nurse and 94 by physicians. Of the 94 Pap smears performed by physicians, 63 were taken by a female physician, and 31 were taken by a male physician. Four male physicians and four female physicians were involved in taking Pap smears. A physician was involved in one way or another (eg, writing a prescription or reviewing a physical finding) in an estimated 41.8% (23 of 55) of Pap visits to the nurse.

Table 1. Pap smear results

PAP TEST CLASSIFICATION	PHYSICIANS (N = 94)	NURSE PRACTITIONER (N = 55)
Inadequate smear quality	8	0
Adequate smear quality	86	55
No abnormality noted	66	45
Benign squamous atypia	5	4
Benign glandular atypia	1	0
Mild squamous dyskaryosis	7	5
Moderate squamous dyskaryosis	3	1
Squamous carcinoma	1	0
Mild glandular atypia	2	0
Combination of mild squamous dyskaryosis and mild glandular atypia	1	0

All samples collected by the nurse were found to contain sufficient endocervical and metaplastic cells for adequate reporting in addition to squamous cells (Table 1). The qualitative analysis by the cytopathologist of 12 slides showed that all were well prepared and easy to read.

More than 90% (86/94) of physician samples showed endocervical and metaplastic cells. Nearly 9% (8/94) of the smears were inadequate for reporting. A review of the eight inadequate smears reveals that two of the smears were inadequate because of excessive inflammatory cells,

one smear was inadequate because of excessive blood (taken from a patient experiencing an incomplete abortion), and five were inadequate because of too few epithelial cells.

The average age of patients seeing the nurse was 30 ± 12 (N \pm SD) years old. The average age of patients seeing the doctors was 32 ± 12 years old. The nurse saw 18 Native women (33%) and 37 (67%) non-Native women. The doctors saw 47 (50%) Native women and 47 (50%) non-Native women.

Because the two groups (nurse versus physician) were not truly comparable, the results of statistical analyses comparing the two groups are not reported. There is an obvious initial selection bias in that the nurse practitioner took samples from a self-selected group of women. The data suggest she saw proportionately fewer Native women than physicians saw, slightly younger patients, and no women with cervical inflammation or vaginal bleeding.

DISCUSSION

Results show that the nurse practitioner in our study collected Pap smears that were of comparable quality to those collected by physicians in our clinic. Our results are consistent with those of a recent Australian study, which showed that nurse practitioners are capable of collecting technically adequate specimens, and their technical competence is equal to that of physicians.⁷

Having the nurse practitioner take Pap smears has also been positive for the clinic and the community. Women no longer have to be concerned about whether a female health care provider is available to do a Pap smear if they prefer a woman. In addition to providing good-quality screening, we have found many other advantages to employing a nurse practitioner in this role. A routine visit for a Pap smear with the nurse is scheduled for 30 minutes. During this time, the nurse explains the screening test, discusses any related issues and concerns the patient has, and provides age-appropriate health promotion counseling (including breast self-examination). Other advantages include the absence of the

requirement of a chaperon and fulfilling the apparent preference of some women for a female practitioner. Finally, having the nurse do routine Pap smears has allowed physicians (particularly our female physicians) more time for diagnosis and treatment of disease.

Ours is not the only clinic employing non-physicians to do Pap smear testing. Much of the cervical cancer screening in the Northwest Territories is performed by "outpost nurses." Nurse practitioners are also doing Pap smears in some urban centres. As far as we can tell, ours is the first published Canadian study addressing whether a Canadian nurse practitioner can take adequate Pap smears.^{8,9}

We conclude from this study that a Canadian nurse practitioner can be trained to collect adequate Pap smears from the transformation zone of the cervix. Our experience has been positive, and we recommend that other medical clinics set up similar programs. Admittedly, our situation is somewhat unique. The Bella Coola Medical Clinic is affiliated with the United Church Mission Health Services Program. Physicians are salaried, and the government provided the United Church Health Services with extra funds so that we could hire a nurse practitioner. At present, fee-for-service physicians cannot bill for services provided by a nurse practitioner. Fee-for-service physicians cannot even bill for preventive-type services, despite the fact that governments continue to claim that this is the direction they would like to take primary care. Based on an hourly wage, a Pap smear taken by our nurse practitioner costs half as much as one taken by a physician. Results of this study could provide impetus for examining alternate billing payment systems.¹⁰ ■

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