

Access to Colposcopy Services for High-risk Canadian Women: Can We Do Better?

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ABSTRACT

Background: Despite overall decreasing mortality from cervical cancer, selected groups of Canadian women continue to have suboptimal access to diagnostic and treatment interventions for cervical cancer. In this paper, we present an evaluation of a colposcopy program developed to improve attendance for colposcopy in a lower socio-economic and immigrant population.

Methods: All women attending the North Hamilton Community Health Centre (CHC) who required colposcopic assessment and were referred to a newly developed colposcopy program based at the CHC were evaluated. Attendance rates for consultation, follow up and treatment in women referred for colposcopy were compared retrospectively for the CHC-based colposcopy program and concurrently with the regional colposcopy clinic (RCC).

Results: Women referred to the CHC colposcopy program had a significant reduction in their no-show rate after the introduction of the locally based colposcopy program (17.2% vs. 1.3%, $p < 0.01$). Comparing the same time periods, there was no significant reduction in the default rate at the RCC (2.5% vs. 3.3%, $p = 0.21$). Despite serving a population of women who were at higher risk for non-attendance, patients at the CHC had a default rate for appointments similar to that of the RCC (1.3% vs. 3.3%, $p = 0.55$) after the introduction of the local colposcopy program.

Conclusions: Lower socio-economic status and immigrant women receiving care from a CHC-based colposcopy program had a significant decrease in their no-show rate for colposcopic evaluation after the introduction of the on-site program. Consideration must be given to locating diagnostic colposcopy programs in settings more accessible to women who require these services the most.

La traduction du résumé se trouve à la fin de l'article.

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Mortality from cervical cancer has decreased significantly in Canada due in large part to the widespread implementation of Papanicolaou smears and diagnostic colposcopy programs,¹ which permit identification and treatment of pre-neoplastic cervical lesions, prior to potential malignant transformation.² Colposcopy and directed biopsy are essential components of any cervical screening program, allowing the clinician to make decisions regarding treatment and follow up of cervical abnormalities.

Failure to attend for follow up of abnormal Pap smears has been identified as a contributing factor in the development of cervical cancer in retrospective studies,^{3,4} underscoring the importance of colposcopy evaluations in prevention of cervical cancer. Low socio-economic status (LSES), visible minority and immigrant women are of particular concern, given their higher risk for non-attendance for screening Pap smears, and their over-representation among women who have cervical cancer.⁵⁻⁷

There is little Canadian literature describing the uptake rate for colposcopy of LSES women. Canadian guidelines recommend that colposcopy programs be coordinated provincially and be delivered at university teaching centres, regional cancer facilities or at designated hospitals.^{8,9} While centrally based colposcopy programs may provide administrative, economic and quality assurance advantages, they may also introduce potential barriers to care for some LSES and other marginalized women in Canada. Data from the United States (US) and the United Kingdom (UK) has shown that LSES women are more likely to default on colposcopy appointments,¹⁰ and have non-attendance rates between 25 to 50% for initial colposcopic assessments.^{11,12} This is in contrast to default rates from colposcopy clinics serving the general population, which have been reported at 3% for the initial visit and 11-12% for follow-up visits.^{13,14} In the US and UK, several strategies to improve attendance for follow-up of abnormal Pap smears in LSES women have been evaluated, and these include telephone counselling, vouchers and outreach programs.^{12,15-17} However, similar programs have not been implemented or evaluated in Canada.¹⁸

As part of an ongoing strategy to improve women's health, a medical chart

review on Pap smears was conducted at a community health centre (CHC) located in a low-income neighbourhood of Hamilton, Ontario. Almost 20% of Pap smears taken at the centre were found to be abnormal compared to rates of 5-10% in the general population.¹⁹⁻²¹ Given this high prevalence of cervical abnormalities (and thus greater risk for cervical cancer) coupled with the LSES and ethnic diversity of the population, a colposcopy program based at the CHC was developed in order to enhance access to colposcopy services in this population.

In this paper, we conduct a program evaluation using a historical cohort to assess the effectiveness of this colposcopy program. The evaluation will compare default or "no-show" rates for colposcopy appointments before and after the institution of the CHC-based colposcopy program. In order to control for secular trends, a concurrent cohort was used to compare default rates at the CHC program with those of the Regional Colposcopy Centre (RCC).

METHODS

Setting

The North Hamilton Community Health Centre (CHC) is a multidisciplinary academic CHC serving the north end of Hamilton, Ontario. The CHC serves a population that is considerably more economically disadvantaged and ethnically diverse than the population of Hamilton (Table I).²² Over 5,000 patients receive their primary health care from the multidisciplinary health team. To be eligible to receive care at CHC, patients must live within the catchment area (north end of Hamilton) or meet one of the following criteria: HIV positive, an immigrant or refugee without health insurance or requiring translation, or an individual living in a shelter.

Prior to the establishment of the on-site colposcopy program, all CHC patients requiring colposcopy were referred to the Regional Colposcopy Clinic (RCC) for Hamilton-Wentworth. The RCC is geographically distant from the CHC; at minimum, it takes 40 minutes by public transit to travel between the two sites [The Hamilton Street Railway Company, 2002]. After the CHC program was estab-

TABLE I

Demographics of North Hamilton compared to Hamilton-Wentworth*

Sociodemographic Variable	North Hamilton	Hamilton-Wentworth
Less than grade 9 education (> 15 years old)	29.0%	13.5%
Not Canadian citizen	16.2%	6.9%
Unemployed	18.8%	9.8%
Unemployed youth	27.1%	16.0%
Single-parent families	33.0%	20.9%
Smoking rate	38.0%†	25.9%‡

* Statistics Canada. Census, 1996: Profile of Census Divisions and Subdivisions in Ontario. Ottawa.

† Rice J and Feightner J. North Hamilton Community Health Survey. North Hamilton CHC, Hamilton, 1997.

‡ Hamilton-Wentworth Social and Public Health Services Division. Health Issues Report, 2000. Hamilton, ON: City of Hamilton/Region of Hamilton-Wentworth, 2000.

lished in August 1999, all women who received care at the CHC and who required colposcopic evaluation were referred to the on-site program.

The Colposcopy Program at CHC

The on-site colposcopy service was started in August 1999, following the findings of a medical chart review. Colposcopy and directed biopsy were conducted at a monthly clinic at the CHC by a family physician colposcopist (ES), and treatment was conducted at her clinic at the RCC. The program is coordinated by the CHC nurse practitioner.

Regional Colposcopy Clinic (RCC)

The RCC is located at the Henderson General Hospital, an academic tertiary care hospital affiliated with McMaster University. This clinic is the regional referral centre for colposcopy for Hamilton-Wentworth. It is staffed by 11 colposcopists, and has referral criteria similar to the CHC colposcopy clinic. A full spectrum of treatment options, including loop excisions and laser CO₂, are available at this clinic. Clinics are conducted daily, and the program is coordinated by the clinic nurse. The referral process for both clinics is outlined in Table II.

Data collection

Socio-demographic characteristics for the CHC catchment population were obtained from Statistics Canada and were compared with the demographics of the RCC referral population.²³ Retrospective data on referral and permanent default rates from January 1, 1998 to July 31, 1999 (prior to the introduction of the colposcopy clinic) were obtained from both the CHC and RCC. Concurrent data were gathered from the CHC and RCC patients for permanent

default rates from August 1, 1999 to August 31, 2001. At the RCC, the computerized appointment system (Community Wide Scheduling, Meditech) was used to define attendance for new referral, follow-up, and treatment appointments after September 1, 2000.

Retrospective CHC data were gathered through a comprehensive chart audit. The entire chart for all women between the ages of 17 and 70 who had been seen in the clinic for any reason two years prior to January 1998 was reviewed to determine the baseline default rate for colposcopy between January 1, 1998 and July 31, 1999. After the introduction of the colposcopy program, CHC data were gathered on a uniform referral form, completed at the time of referral and at the colposcopy appointment. Smoking status, referral Pap results, biopsy results and HIV status were also gathered at the CHC (Table III). Comparable data on patients referred to the RCC were not readily available.

Appointment definitions

A patient "no-show" or "default" was defined as a colposcopy appointment that was made, but was not attended and was not cancelled. A permanent default was defined as a woman who was referred for initial assessment of an abnormal Pap smear but failed to attend for that assessment in the 12 months following referral.

Data analysis

Default rates prior to establishing the on-site CHC program and after the program was implemented were calculated. Default rates for initial, follow-up and treatment appointments were also calculated and compared between the CHC and regional program to examine secular trends. Univariate analyses were conducted using

TABLE II**Referral and Follow-up Procedures Between CHC and RCC**

	North Hamilton CHC Colposcopy Clinic	Hamilton Regional Colposcopy Clinic (RCC)
Referral Criteria	<ul style="list-style-type: none"> At least two Pap smears of either ASCUS* or LSIL† or one Pap smear of HSIL‡ 	<ul style="list-style-type: none"> At least two Pap smears of either ASCUS* or LSIL† or one Pap smear of HSIL‡
Initial Appointment	<ul style="list-style-type: none"> Patient notified of need for colposcopy by health practitioner from CHC Colposcopy appointment time given to patient in person at time of appointment Reminder phone calls made to select patients with prior history of non-attendance at clinical evaluations All missed appointments results in phone call to patient from CHC and patient given new appointment time 	<ul style="list-style-type: none"> FPO§ notifies patient of need for colposcopy evaluation as per usual protocol FPO faxes referral request to RCC RCC informs FPO of appointment time FPO notifies patient of appointment time as per usual protocol First missed appointment results in letter to patient from RCC and patient given new appointment time by mail Second missed appointment requires re-referral by FPO
Follow-up Appointment	<ul style="list-style-type: none"> Patients book their own appointments when exiting colposcopy evaluation Phone call to patient if no appointment made after 9 months 	<ul style="list-style-type: none"> Patients book their own appointments with reception when exiting colposcopy evaluation No tracking of patients who do not book follow-up appointment
Re-referral Appointment	<ul style="list-style-type: none"> Personal phone call by nurse practitioner to patient Opportunistic reminder when patient in clinic for another reason 	<ul style="list-style-type: none"> Letter sent to FPO notifying them of initial missed appointment and re-booking

* ASCUS: Atypical squamous cells of unknown significance

† LSIL: Low grade squamous intraepithelial lesions

‡ HSIL: High grade squamous intraepithelial lesions

§ FPO: Family physician's office

TABLE III**Description of Women Referred to CHC Colposcopy Program**

Descriptor	Results
Mean Age	30.7±9.9 years
Age Range	17-56
Smokers (%)	56
HIV Positive (%)	4.3
Referral Pap (%)	<ul style="list-style-type: none"> ASCUS: 26.7 ASCUS/LSIL: 57.3 HSIL: 14.5
Biopsy Results (n)	<ul style="list-style-type: none"> Normal: 26 LSIL: 6 HSIL: 9 Endometriosis: 1

TABLE IV**Default Rates for Evaluations at CHC and RCC Following Institution of the On-site Colposcopy Clinic**

	CHC (%)	RCC (%)	95% CI	p value
Initial Consultation	5/75 (6.7)‡	92/1013 (9.1)†	0.3-1.8	0.62*
Follow-up Consultation	10/65 (15.4)‡	716/3679 (23.0)†	0.4-1.5	0.51*
Treatment Visit	1/10 (10)‡	25/370 (6.8)†	0.2-12.6	0.82*
Permanent Default	1/75 (1.3)‡	69/2126 (3.3)‡	0.05-2.9	0.55*

* NS

‡ August 1, 1999 – August 31, 2001

† September 1, 2000 – August 31, 2001

Pearson chi square or Fisher's exact test where appropriate using Microsoft Excel and Statsol program. All tests were two sided, and a p value of less than 0.05 was considered significant in all comparisons. Ethical approval for the study was obtained from McMaster University Faculty of Health Sciences Ethics Committee.

RESULTS

Between January 1, 1998 and July 31, 1999, prior to the existence of the North

Hamilton colposcopy clinic, 29 CHC patients were referred to the RCC for evaluation of cervical abnormalities. Five of these women never attended their colposcopic assessment, resulting in a permanent default rate of 17.2% (5/29) for CHC patients referred to the RCC. During the same time period, 1,462 women, excluding the 29 women from the CHC, were newly referred to the RCC and the permanent default rate was 2.5% (36/1462). North Hamilton patients were significantly more likely to default for

their colposcopy appointments compared to the other women referred to the RCC (17.2% vs. 2.5%, $p < 0.01$) during that period.

Following introduction of the on-site colposcopy service at CHC, between August 1, 1999 and August 31, 2001, there were 75 new referrals, and 65 follow-up appointments (Table IV). Ten women were eventually referred for treatment to the RCC. During the same time period there were 2,126 new referral appointments, 6,521 follow-up and 697 treatment appointments made at the RCC. Non-attendance rates for follow-up and treatment appointments for the RCC were available for September 1, 2000 to August 31, 2001 (Table IV).

After institution of the on-site colposcopy service, the permanent default rate fell from 17.2% to 1.3% (1/75). This represents a 15% difference in default rate compared with the time period prior to the CHC clinic (15.9%, 95% CI 1.9-29.8, $p < 0.01$) (Figure 1). Comparing these same time periods, the permanent default rate at the RCC rose from 2.5% to 3.3%, with no significant difference in the permanent default rate (0.7%, 95% CI -0.4-1.8, $p = 0.2$). Prospective comparisons between the RCC and CHC for attending initial, follow-up and treatment evaluations and for permanent default rates reveal no significant difference between these rates at the two sites (Table IV).

INTERPRETATION

Previous studies have established that Aboriginal,²⁴ immigrant,^{25,26} younger,²⁷ less educated²⁸ and low-income women^{29,30} are less likely to attend appointments for cervical cancer screening and treatment interventions, even in the setting of universal health care and organized provincial screening programs. This screening gap for cervical cancer is particularly of concern, because unscreened women represent a large proportion of the cases of invasive cervical cancer.³¹ Programs have been encouraged by groups such as the Cervical Cancer Prevention Network to respond to this reality by targeting high-risk groups, in order to ensure this population accesses effective screening and treatment interventions.^{32,33} This study represents one of the first efforts to describe and evaluate a Canadian program designed to improve compliance with colposcopy in a group of lower socio-economic and culturally diverse women. Following the introduction of a program based at a local CHC, patients were much more likely to attend their initial colposcopy appointments. As well, despite providing care to a population at high risk for non-attendance for colposcopy evaluations, the CHC program had a default rate for initial assessment, follow up, and treatment that was not greater than that of the regional program. Women who attended the local clinic did not demonstrate the expected default rates of 25-50% usually seen in similar cohorts of women.¹³

Previous studies have identified insufficient understanding of the importance of colposcopy, anxiety and embarrassment, economic barriers and practical barriers (lack of time, transportation and childcare)^{12,24,34,35} as reasons why lower socio-economic and immigrant women do not attend colposcopy appointments. Likely contributors to the success of this program include geographic accessibility, CHC model of care and patient comfort with the community health centre. Women do not need to take additional public transit, pay for parking, or locate a clinic within a large, unfamiliar health sciences complex. CHCs offer a focus on both preventive as well as ongoing clinical health care and provide care to patients from a multidisciplinary health team. In

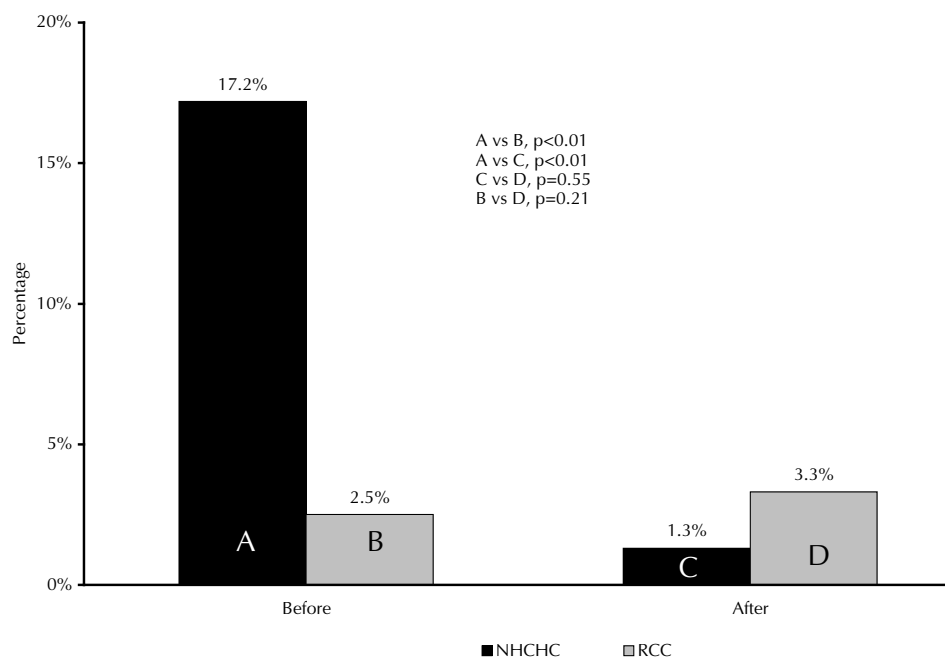


Figure 1. Permanent default* rate for colposcopic assessments before and after implementation of the on-site colposcopy service

* Permanent default: patient who was referred for initial assessment of an abnormal Pap smear but failed to attend for that assessment in the twelve months following referral.

addition, the CHC approach is grounded in a social determinants of health model, which recognizes the many societal factors such as education, income and cultural background that influence health status, and staff support endeavours to address these broader determinants of health. Unlike attending a referral program, all the patients seen at the CHC program would have already had an existing relationship with the health professionals at the CHC and would be familiar with the setting. This may reduce fear and anxiety about the procedure and increase their willingness to attend for colposcopy at the CHC. Translation services are readily available for non-English-speaking patients. Practitioners are also familiar with the patients, and thus able to identify those who might need a reminder phone call for their appointments. This is an important advantage offered by the primary care setting compared to the consulting setting, given the practitioners' prior knowledge of the patients and their concerns.

This study found that, even in the setting of universal health care, LSES women were less likely to attend their colposcopic assessments at the RCC compared to the general referral population. The success of this program may have several implications for Canadian colposcopy programs. In col-

poscopy clinics where a large number of at-risk women receive services, consideration should be given to establishing "satellite" clinics at centres more accessible and having experience in serving an at-risk population. These satellite programs should be based in well-established community clinics that offer a wide range of services and significant experience working with at-risk populations. There must be clear links with regional treatment programs, in order to ensure that women requiring treatment can access this service in a timely manner, and to ensure the colposcopist maintains skills. The practitioners must be experienced colposcopists with evaluation and treatment volumes large enough to ensure that similar quality of care is received in satellite and regional programs.

There are some limitations with this study. There was an increased number of referrals for colposcopy at CHC (from 25 to 75) after the introduction of the CHC colposcopy program. Had there been a similar referral rate in the two time periods, one would expect to see approximately 40 referrals for colposcopy to the CHC program. The increase is likely due to an increase in the actual uptake of Pap smears at the CHC, as a result of the chart review findings that identified women in the clinic who were overdue for Pap smears.

Although patients were not randomized in this study, the concurrent cohort followed at RCC would identify any potential secular trends in colposcopy attendance and defaults over the same time period. Demographic data for the catchment areas for both sites were obtained directly from Statistics Canada as opposed to chart reviews, which would only reflect patients who attended the clinic.

With public health programs, it is often not possible to define which element(s) are responsible for the overall improved outcome in the intervention group. Further qualitative exploration may be informative, but it may not be possible to discern which discrete aspects of this intervention are the most influential in improving the colposcopy uptake rate. Effective programs such as this one continue to be recommended and utilized – despite the lack of certainty regarding which components are crucial to its success – because of their overall effectiveness and benefit to the target population. This study suggests that in the setting of universal health care, colposcopy programs based in centres which are geographically accessible, have a multi-disciplinary team, offer a wide range of services to at-risk populations grounded in a preventive health focus and where women have an established relationship can significantly improve access for a group of women at high risk for non-attendance. This could potentially reduce cervical cancer rates in this already at-risk population.

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RÉSUMÉ

Contexte : Malgré la baisse globale de la mortalité due au cancer du col utérin, l'accès de certains groupes de Canadiennes aux mesures de diagnostic et de traitement de ce type de cancer demeure sous-optimal. Nous présentons ici l'évaluation d'un programme de colposcopie visant à améliorer la participation à la colposcopie dans une population immigrante et de faible niveau socio-économique.

Méthode : Nous avons évalué toutes les clientes du Centre de santé communautaire de North Hamilton devant être évaluées par colposcopie et ayant été aiguillées vers un nouveau programme de colposcopie offert sur place, au centre de santé. Les taux de participation aux séances de consultation, de suivi et de traitement chez ces femmes ont été comparés rétrospectivement (pour le programme de colposcopie du centre de santé) et par rapport aux taux observés à la clinique régionale de colposcopie.

Résultats : Les femmes aiguillées vers le programme de colposcopie du centre de santé présentaient une baisse significative de leur taux de non-présentation aux rendez-vous après l'instauration du programme de colposcopie local (17,2 % contre 1,3 %, $p < 0,01$). Sur la même période, il y n'y a pas eu de baisse significative dans le taux de non-présentation à la clinique régionale (2,5 % contre 3,3 %, $p = 0,21$). Bien que le centre de santé desserve une population de femmes ayant un risque de non-participation plus élevé, les patientes du centre affichaient un taux de non-présentation aux rendez-vous semblable à celui des patientes de la clinique régionale (1,3 % contre 3,3 %, $p = 0,55$) après l'instauration du programme de colposcopie local.

Conclusions : Les femmes immigrantes et de faible statut socio-économique qui recevaient des soins dans le cadre d'un programme de colposcopie offert dans leur centre de santé communautaire affichaient une baisse significative de leur taux de non-présentation aux rendez-vous de colposcopie après l'instauration d'un programme sur place. Il faudrait donc envisager l'implantation de programmes de colposcopie diagnostique dans des lieux plus accessibles aux femmes qui ont le plus besoin d'un tel service.

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IN MEMORIAM

John Elgin Ferguson Hastings, MD, DPH, FRCPC

1928-2004

It is with great regret that we inform friends of public health of the passing of Dr. John Hastings.

John Hastings was born in Toronto in 1928, completed his undergraduate and medical education at the University of Toronto, and then began an outstanding 37-year academic career in the Faculty of Medicine (1956-1993).



John was instrumental in creating the “second generation” of public health education and research when the School of Hygiene joined the Faculty of Medicine to form the Division of Community Health in 1975. He was appointed the first Associate Dean, and served two terms in that position. John was known for integrating up-to-date research techniques with graduate education in public health, for laying the groundwork for community health centres as an integrated model for clinical and community health services, and for encouraging faculty and students to be advocates for health and social reform.

A leading figure in the field of public health, both in Canada and internationally, John worked for the World Health Organization, the Pan-American Health Organization, and post-retirement as President of the Canadian Public Health Association from 1997-1998.

As a result of his tireless efforts, John received a number of awards, including the Ortho Award (1975) from CPHA, the Canada-Queen’s Silver Jubilee Medal (1977) and the WHO/PAHO Fellowship for Administration (1987). In 1992, he was awarded CPHA’s R.D. Defries Award in honour of his profound impact on both the Canadian health care system and on practitioners of community health. Both his work on policy alternatives within community health and his commitment to furthering the education of public health professionals have had a tremendous effect on Canada and our health care.

John was a dynamic leader, teacher and mentor in public health – indeed he was a powerhouse of intellectual creativity, innovation and inspiration. He will be greatly missed by family, friends and colleagues.